



33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1
AT

Telegraphic Address: "TRAZETTE PRL, LONDON"
Telephone No.: WHITEHALL 9233 (6 lines)

Annual subscription payable in advance and postage free:
British Isles and Abroad £2 5s. 0d.
Single Copies One Shilling
Registered at the General Post Office, London, as a Newspaper

VOL. 73 NO. 5

FRIDAY, AUGUST 2, 1940

CONTENTS

	PAGE
Editorials	109
Letters to the Editor	113
The Scrap Heap	114
Overseas Railway Affairs	115
Franco Locomotive Improvements	116
Electric Traction Section	117
Earthquake Reconstruction in India	122
Railway News Section	127
Personal	127
Transport Services and the War	129

NOTICE TO SUBSCRIBERS

Consequent on further paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list which will be dealt with in rotation in replacement of existing subscribers who do not renew their subscriptions.

Annual subscriptions are payable in advance and subscribers are advised to pay their renewal accounts before the expiration of the existing subscription as the dispatch of copies will in all cases be stopped on expiration

DISPATCH OF "THE RAILWAY GAZETTE"
OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE possesses the necessary permit and machinery for such dispatch, and any reader desirous of arranging for copies to be delivered to an agent or correspondent overseas should place the order with us together with the necessary delivery instructions.

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas, as they are stopped under the provisions of Statutory Rules & Orders, 1940, No. 629

TO CALLERS AND TELEPHONERS

Our office hours until further notice are:—

Saturdays - - - 9 a.m. till 12.30 p.m.

Mondays to Fridays - 9 a.m. till 5 p.m.

The office will be closed on the first Saturday in every month until November 2, inclusive

No August Bank Holiday

THE Government has decided that next Monday shall not be kept as August Bank Holiday, and for great numbers of persons it will not be readily distinguishable—save by personal sentiments of regret—from its fellows in the working week. A desire not to interrupt national production for the war effort has inspired the Government's action, but it may reasonably be asked whether, when the immediate need has passed, the holiday, and its Whitsun-tide companion, should be reintroduced. Since Sir John Lubbock introduced his Act of 1871 establishing British Bank Holidays, employment conditions have changed greatly. Then there were few holidays with pay; things are very different now. In fact, it could be argued that the Whitsun Monday and August Bank Holidays have really become more of a public nuisance than serving the purpose for which they were instituted. The Christmas holiday and the long week-end at Easter from Thursday to Tuesday, are in quite different categories. The Easter holiday provides the first opportunity for recreation in the open air after the winter months. Incidentally, there is a prevalent impression among members of the general public that the public holidays are beneficial to the railway companies. As a matter of fact we understand that this is not so, and that on balance, the increased passenger receipts do not compensate for the loss of goods and mineral traffic. Another effect of the August Bank Holiday is that it stifles attempts to spread out holidays over the summer months.

* * * *

Earthquake-proof Construction in Baluchistan

The measures taken to rehouse the railway colony at Quetta—650 of whom lost their lives in the 1935 earthquake—in shock-resisting quarters and to rebuild other railway buildings are described on page 122 of this issue. The North Western Railway engineers were wise in deciding from the first that, to reduce overhead charges, speed in reconstruction was essential; the result has been that 90 per cent. of their programme was completed before the war came to interfere with the supply of imported materials. The corresponding great military programme, estimated to cost nearly £5,000,000, is not likely to be completed for several years to come. The railway engineers also concentrated upon economy, secured by scientific means and by an extensive use of salvaged materials, and this accounts for an expected saving of £93,000 upon their estimated total expenditure of £656,000. Modern methods of proportioning concrete on the water-cement ratio and fineness modulus principles as well as thorough testing went far towards this end, but the later type of "light-banded" construction devised for railway buildings was responsible for saving 2s. 9d. a sq. ft. of floor area, or approximately 33 per cent., upon earlier and generally-approved types, without sacrificing shock-resistance. It is evident that the standard of supervision and technical ability left little to be desired.

* * * *

A Novel View on E.P.T.

Industrialists have expressed a diversity of view on the Excess Profits Tax, but on the whole have accepted it as a necessary evil in the process of conducting the war. Many industries directly or indirectly associated in their welfare with the fortunes of home or foreign railways find that the tax bears hardly on them, for the standard years were not times of prosperity for them. In some cases too, the profits which are now subject to this tax have not been derived from the war which has had an adverse effect on the general development of the undertaking. Mr. Leslie Boyce, M.P., Chairman of the Gloucester Railway Carriage & Wagon Co. Ltd., put forward a novel view at the annual meeting on July 29. He said that if in any year the standard profit was

not reached, repayment would be made by the Crown (up to the amount which had previously been paid to it) in order to make up the deficiency. As the law stood, shareholders could regard the amount they were now paying in E.P.T. as to some extent having been transferred to a reserve of which the Government was the trustee, for the equalisation of their standard profit. Shareholders must derive such consolation as they can from that reflection, as they bear in mind the steady increase in profits recently and the transfer to reserve of £112,000 against E.P.T.

* * * *

G.W.R. Chief Legal Adviser

Since the retirement, in 1937, of Mr. W. Bishop, Chief Solicitor of the Southern Railway, Mr. A. G. Hubbard has been the doyen among the solicitors of British railways. For over 21 years he has been Solicitor to the Great Western Railway Company and has now been appointed the Chief Legal Adviser of that company, Mr. C. H. Whitelegge succeeding him as Solicitor. During his term of office, Mr. Hubbard has had to deal with many intricate problems such as the assessment of compensation to the railways after the last war, the release of the railways from Government control in August, 1921, and the passing of the Railways Act, 1921, with its grouping provisions. The G.W.R. alone retained its own name and identity under the grouping arrangements, the original company incorporated in 1835 being constituted the amalgamated company of the Western Group which took over as constituents six Welsh railways, and as subsidiaries 26 smaller railways in various parts of the country. In all (as shown in our "genealogical" table of August 30, 1935) the present G.W.R. is an amalgamation of no fewer than 184 railway undertakings. More recently there have been the acquisition of road powers by the railway companies in 1928, the important negotiations leading up to the passing of the Road & Rail Traffic Act, 1933, and the discussions on the "square deal." Lastly, there have been the protracted negotiations on the financial arrangements with the Government arising out of the present war.

* * * *

Still-Born Transport Plans

As we briefly recorded last week, the Minister of Transport decided to take no steps to implement the recommendations of the Transport Advisory Council on the wartime co-ordination of goods transport. Between the date—February 29—when the council had the matter referred to it and that—May 23—on which it submitted its report to the Minister, the progress of the war had wrought considerable changes in the basic conditions, and since then even more radical alterations have occurred. In any event, the Transport Advisory Council's plan, based on the creation of a central committee, with regional and perhaps sub-regional committees, all of them advisory to the Minister, was hardly likely to result in that efficiency or rapidity of decision which are an elementary basic need in the direction of so important a factor in the war effort as transport. The various forms of control which the Government already possesses would seem to provide a quicker and more effective direction. It is unfortunate that in such days the time of members of the council should have been spent in the production of a scheme which was destined to be still-born, but some of the work may have value later. The proposals of the Road Goods Transport Special Emergency Committee on the operation of vehicles taken over were similarly shelved.

* * * *

Half-yearly Railway Revenues

As we noted in THE RAILWAY GAZETTE of July 26, the Minister of Transport has announced that half-yearly statements of railway revenues and expenditures are to be made. The first of these appeared with the company dividend announcements and is the subject of comment elsewhere in this issue. It is interesting to note the reasons which the Minister adduces for his refusal to accede to requests for more frequent publication of earnings figures. The resumption of weekly traffic receipts of the pre-war kind, which is obviously impracticable, not only because the earnings of individual companies are no longer available, but also because

any comparison has been vitiated by the introduction of changes arising from control, such as the inclusion in railway revenue of earnings of requisitioned privately-owned wagons. The Ministry points out that while weekly figures of traffics may be a guide to the trend of net revenue in normal times this is not so during war, when wages and prices rise, the flow of traffics is changed, and operating methods have to be modified for purposes such as meeting blackout requirements. It is impossible to make the agreed adjustments of charges to wartime rises in costs from week to week and this also detracts from the value of figures relating to short periods as an index to railway profits. This solicitude that the railway investor shall not be misled is likely to have a depressing effect on railway stocks. Notwithstanding all the Ministry's objections, would not a monthly statement of traffic receipts be preferable to rumour and surmise? We can be certain of one thing; a continuance of the present absurdly low prices of railway stocks will lose the State much revenue in valuations for probate.

* * * *

National Salvage Drive

The Ministry of Supply has now launched a nationwide drive for domestic salvage in its endeavours to ensure that waste is eliminated and that our needs in raw materials may be satisfied with the very minimum demands on our shipping space and foreign exchange resources. In the aggregate, spread over Britain's 12,000,000 homes, there must be great accumulations of metal, paper, rags, and numerous other articles which, with proper treatment, can be re-used and form a valuable contribution to the war effort. To appreciate the possibilities one has only to consider that if each household contributed 2 lb. weekly it would result in a total weight of 600,000 tons a year. There are, of course, complications to be faced in dealing with domestic salvage, but these are being steadily overcome. Scrap metal collection, for instance, may be relatively simple, but its sorting and valuation is a skilled task. Although the local authorities will deal primarily with the householders' war offerings, therefore, there will be plenty of scope for the special knowledge of the scrap merchants, and a good deal of time and trouble will be saved if advantage is taken of it at an early stage. The scrap metal organisation of the British Iron & Steel Federation, it is understood, has been consulted by the Ministry, and this should help to overcome some of the more obvious difficulties which might arise from the dual handling of a common object.

* * * *

Export Drive Resumed

Events of recent weeks, including the withdrawal of France from the war and the entry of Italy into it, have obviously called for a recasting as well as a speeding up of the national effort in view of the changed direction which that effort has had to take. Fears had been entertained that the paramount need for increasing production of munitions and the re-equipment of the Forces had disturbed production for export. Undoubtedly that was so, and it is therefore all the more satisfactory to have the assurance that the Government intends to maintain the export trade at the highest level possible because of its vital importance as a means of paying for imports of goods essential to the war effort. It fell to Mr. Arthur Greenwood, Minister without Portfolio, to make this clear. More recently, it is believed, the supply of raw materials has so much improved that it has been found possible to restore the full allocation to undertakings manufacturing for export, without in any way slackening production for war purposes. The Government is impressing on workers in export industries that their effort is no less vital to success in the war than that of their fellows who are directly engaged in producing munitions.

* * * *

Completion of the Baghdad Railway

More than 80 years have passed since proposals were made for a railway across Asia Minor to Baghdad, but the original Euphrates Valley Railway scheme was allowed to die after British interests had secured a predominant position in the

Such visits became more frequent at the final stages. July 1908 had lined and the by three less. From for Ma war last been Mo for An and some me Chin app for of the lar on in The a s tha Oct 843 und mu The Ca ala dev or und mu crit is sini to eve Lon sen dea upo the por way un "M car pub usua of inc

Suez Canal. Then, as a result of the German Emperor's visit to Abdul Hamid in 1898, the old Anatolian Railway became the nucleus of the German-sponsored scheme that was intended to link Haidar Pacha with Baghdad and the Persian Gulf. This Baghdad Railway, so long projected, is at last an accomplished fact, but, because of the war, the final section was opened without ceremony. The first passenger train left Baghdad on the night of Wednesday, July 17, for Mosul, Ankara, and Haidar Pacha on the Asiatic side of the Bosphorus opposite Istanbul. Between 1903 and the outbreak of the last war, considerable sections had been built but there were still many gaps in the through line, chiefly in the region of Mosul and through the Taurus and Amanus mountains. When Turkey entered the war at the end of 1915, construction was pushed forward actively by the German Government but the standard-gauge line through these mountain ranges was finished on October 5, 1918, less than three weeks before the British occupation of Aleppo. From the north, the terminus at Tel Ziouane was pushed forward to Tel Kotchek on the Syrian—Iraq frontier in May, 1935, and onward to Mosul in March, 1939. Northward from Baghdad the railway reached Sharqat during the last war, but, for many years past, peacetime operation has been confined to the Baghdad—Baiji section. Thence to Mosul it is understood that only part of the Baiji—Sharqat formation has been used for the new line.

* * * *

American Railways and Defence

Mr. C. H. Buford, Vice-President (Operations & Maintenance Department), Association of American Railroads, had some pertinent remarks to make at the eighteenth annual meeting of the Mechanical Division of the association in Chicago last month. Much that he had to say was also applicable to some in this country who have their own ideas for improving the British railways, based on a combination of agility in the manipulation of statistics and ignorance of the realities of railway working. Mr. Buford referred particularly to those who quoted dubious figures which threw doubt on the ability of the U.S. railroads to carry whatever increase in business might materialise from the defence programme. The Association of American Railroads had just completed a survey of the equipment of its member lines which showed that on June 1 there were 35,784 more cars in service than in October last year, at which time the average loading was 843,736 cars a week. With new cars on order and those under repair the railroads would soon be able to handle a much higher peak load than the 861,000 peak of last autumn. The only reason to justify the acquisition of further new equipment would be to reduce operating costs.

* * * *

Careless Talk

Now that it is possible to be put in prison for spreading alarmist stories about the war, we hope there will gradually develop a more cautious attitude towards all kinds of gloomy or malicious statement on subjects which are not completely understood. Such a tendency would save the railways from much slander. The usual distinction between the railway critic and the merely malicious "fifth columnist," however, is that the railway critic holds his views with passionate sincerity, like a recent acquaintance who seemed ready to go to the rack or the stake rather than renounce his faith that even before the war it was impossible to travel between London and Sheffield in under four hours. Further misrepresentation is often heard on the subject of the "square deal" campaign of 1938, which seems to have imprinted upon the uninquiring surface of many minds the notion that the railways were trying to impose a *Führerprinzip* on transport, until it needs no more than the whispered word "railway" to make many an H.G. seize his musket from the umbrella stand. Less sinister associations are attached to the "Meet the sun on the East Coast" slogan, which last year carried further some of the "square deal" methods of publicity, although, were it not for the fact that they usually meet something even hotter, we might in these days of secret weather reports hear the phrase criticised as an incautious invitation to enemy aircraft.

Railway Dividends and Earnings

THE half-yearly dividends and earnings statements of the railways have been received with a great deal of satisfaction, although generally a better reception was accorded the actual dividends than the earnings on which they were based. The former were in accord with the payments suggested in THE RAILWAY GAZETTE of July 19. The earnings disclosed on Friday last for the first six months of the year did not bear out the highly optimistic expectations which were entertained in some quarters when the financial agreement with the Government was made known in February last. In part, as was suggested in THE RAILWAY GAZETTE at the time, that was because of a tendency freely entertained then to view the prospects of the railways too flamboyantly, to regard the financial agreement as generous whereas in fact it was in many ways a hard bargain, and to overlook the rapidity with which costs have been rising since the outbreak of war. Notwithstanding the provision in the agreement for the adjustment of charges to rises in costs resulting from the war, there must at any date be a time lag. It is evident, too, that the increase of charges which came into effect on May 1, is not sufficient to take care of the rise in costs and, as has been suggested before in THE RAILWAY GAZETTE, a further advance must be expected shortly. The yield of the increases already authorised is estimated at £18,000,000 in a full year; they were made to offset an estimated rise in costs of £26,750,000 for the 19 months to end March, 1941, of which £22,250,000 was accepted by the Ministry. In the past 6 months, which included two months of higher charges, expenses record an advance of well over £13,500,000. Costs are still increasing and it is apparent that the lag between costs and charges is still widening. It is probable that it will be necessary for charges to be made to yield a further £7,000,000 or £8,000,000, and action to this end will have to be taken shortly if the percentage advance in charges is to be kept reasonably small. The figures which have just been issued should serve as an answer to some of the criticisms which were made of the higher charges brought into effect earlier this year, for, notwithstanding the greatly increased use to which the railways have been put, the net revenues returned are but little above the relative proportion of the guaranteed revenues, themselves based on periods which were not prosperous for railways.

The statements issued last week were in two main categories. There was first the White Paper issued by the Minister of Transport giving estimates of the pooled revenue receipts and expenses and the resultant net revenue of the four main lines and the L.P.T.B. for the whole period of Government control split into two phases: from September 1 to December 31, 1939, and from January 1 to June 30, 1940. The latter period resulted in a total net revenue to the pool of £20,867,000, an increase of £5,963,000 over the first half of 1939, and comparing with the guaranteed net revenue for a full year of £39,700,000. Of the total receipts of the pool, amounting to £116,458,000, showing an increase of £20,687,000 over the similar period of 1939, freight takings accounted for £66,133,000, an advance of £19,855,000, and passenger revenue to £49,188,000 or £435,000 more. The remainder resulted from miscellaneous traffics which accounted for £1,137,000 or an advance of £397,000. Other items included in the pool were down by £1,089,000 to show a debit of £687,000. The preponderance of freight revenue in the figures of increase is, of course, a direct reflection of wartime conditions and was fully expected. A feature of the return is the sharpness of the rise in expenditure—at £94,904,000 it is up by £13,635,000—which reflects higher labour and other costs, although some part of it is necessarily incurred in the movement of a greater volume of traffic.

The second category of statements was of those issued by the individual companies. These showed the amounts which the four main-line railway companies and the London Passenger Transport Board receive from the pool, and the dividends which the boards had decided to recommend. In each case it was pointed out that the amount of the pool accruing to the companies could be determined only when the results

for the full year were known. These statements also showed the revenue which had accrued from items excluded from the pool (investments in road transport undertakings and Irish railways), amounting in total to some £498,000, a round figure arrived at by deduction of actual carry forwards from approximate total revenues and then the subtraction of the pool shares.

The Great Western Railway receives £3,220,000 as its 15.5 per cent. proportion of the pool and this amount is raised to £3,560,000 by the amount brought forward and the non-pooled revenue. The directors are paying an interim dividend on the ordinary stock of 1½ per cent. Last year this stock received no July payment.

The L.M.S.R. share (33.9 per cent.) amounted to £7,065,000, which was raised to £7,336,000 by revenue from other sources. On the 4 per cent. 1923 preference the full rate is forthcoming this time, whereas a year ago no payment was made.

The L.N.E.R. received £4,831,000 from the pool as its 23.1 per cent. share, and had a total net revenue of £5,021,000 and is paying the full rates on the first preference and the 1955 preference, both of which went unremunerated twelve months ago.

The Southern takes £3,388,000 as its 16.2 per cent. share of the pool and returns a total revenue of £3,574,544. It pays 2½ per cent. (against 1 per cent.) on the preferred ordinary stock.

The London Passenger Transport Board is entitled to 11.3 per cent. of the pool which is equal to £2,357,000. Of this £2,040,000 is absorbed in the service of prior charges. The balance of £317,000 with the balance of £30,000 in the "C" stock interest fund gives a total available of £347,000. Interest is paid on the "C" stock at the rate of ½ per cent. which will absorb £192,741 and leave £154,259 to be carried forward. In order to conform with the accounting period of the pool the board is obtaining authority to change its financial year so that it will end on December 31 instead of June 30 as hitherto.

The Gauge Question in Africa

IN the recent annual report of the Kenya & Uganda Railway (see THE RAILWAY GAZETTE of June 28, 1940) a reference was made to new units of rolling stock placed in service, and the report stated that all the vehicles had been constructed to admit of conversion for operation on the 3 ft. 6 in. gauge, should standardisation with other African railways become necessary. The gauge of the Kenya & Uganda system is one metre (3 ft. 3½ in.) and the reference to the possibility of standardisation recalls the extraordinary diversity of gauges in use on the railways of the African

continent. Of the total 42,410 miles of railways throughout the continent, 24,263 miles, or 57 per cent., are on the 3 ft. 6 in. gauge, a preponderance accounted for principally by the South African system and neighbouring lines. Nearly all the railways in the southern half of the continent, as well as those of our West African colonies, and the Sudan, are on the 3 ft. 6 in. gauge. In the northern half, the greater part of the systems of Algeria and Egypt are standard gauge (4 ft. 8½ in.), but the metre gauge is general in part of Algeria, in Tunisia, and in the French West African colonies. The metre-gauge Kenya & Uganda system links up with the railways of the neighbouring Tanganyika territory, also metre gauge. Thus the metre gauge accounts for just over 10,000 miles, or nearly one quarter, of the total African mileage.

The question of standardisation arose long ago, in connection with the idea of a Cape to Cairo through route, but since the establishment of regular road motor services and lake steamers between rail-heads, the traveller can perform that journey in normal times on an almost continuous timetable. Similarly it is possible to journey across the continent, using the regular rail, road, and waterway services, from one coast to the other, almost without interruption. Nevertheless, as railway construction extends towards the centre of the continent, the advantages of standardisation become more apparent, especially as the difference between the two gauges principally in use, the metre and 3 ft. 6 in., is so small. The statement at the foot of the previous column gives approximately, and as far as can be ascertained, the mileage of each gauge in the different parts of the African continent.

Hellenic State Railways

IN the financial year 1938-39, the Hellenic State Railways, which comprise the main railway system in the country, consisted of 1,330 km. of track out of a total of 2,650 km. The State lines include 1,264 km. standard gauge (made up of the main line Piraeus—Plati, 529 km., and the Salonica group of 734 km., namely Salonica—Alexandroupolis, Salonica—Florina, and Salonica—Eidomene), and the 66 km. 2 ft. gauge line between Sarakli and Stavros, to the east of Salonica. There was an increase during the year under review in the number of passengers and the tonnage of goods carried, with a corresponding increase in receipts. This liveliness is attributed to the good crops and the consequent briskness in trade. Expenditure, however, rose also. The increase in volume of traffic has meant more fuel and more replacements and service repairs, while a general increase in salaries, bringing the general wages index up by one unit, has also contributed to the passive state of the balance sheet, which shows a deficit of 7,162,833.43 drachmas, with receipts at 538,625,544.33 and total expenditure at 545,788,377.76 drs. Nevertheless, the results are considered satisfactory, as in the expenditure is included the service on three loans covering previous years also and amounting to some 20 million drs. Receipts in the year 1938-39 show an increase of 7.5 per cent. or 37,847,000 drs., on the previous year. Of this, 8,572,000 drs. represents increase in passenger receipts and 28,615,000 on goods, with 660,000 on various other items. Ordinary working expenditure at 472,659,251 drs. shows an increase of 35,807,586 on the previous year, and the net earnings of 65,966,293 are 2,039,416 drs. up.

Changes on the staff have been slight. The permanent staff, at 4,964, shows a decrease of 43 due to retirements, etc., while temporary or extra staff numbers 8,021 or 497 less, owing to the completion of work on which they were engaged. Train-kilometres on the standard-gauge lines amounted to 6,948,405, showing an increase of 622,225 on the previous year, while gross ton-km. (goods) were 660,048,290, an increase of 35,099,262. The fuel consumption amounted, on the 1.44 m. gauge lines, to 121,138 tons of coal and 230 tons of lignite, showing an increase of 11,946 tons of coal and 125 tons of lignite on the previous year. The coal consumption has shown a steady rise in the past few years: in 1933-34 it was only 58,941 tons. On standard-gauge lines the number of passengers (5,339,479) is 7.5 per cent. higher, and the tonnage of goods carried (2,137,152 tons) shows an

RAILWAYS OF AFRICA, SHOWING MILEAGE ON VARIOUS GAUGES

Territory	Total mileage	4 ft. 8½ in.	3 ft. 6 in.	Metre	2 ft. 6 in.	2 ft.
South Africa	13,342	—	12,350	—	108	884
Egypt	3,688	2,649	—	164	875	—
Algeria	—	2,770	1,313	934	—	35
French West Africa*	2,668	—	—	2,599	—	69
Rhodesia & Bechuanaland	2,442	—	2,442	—	—	—
Belgian Congo	2,398	—	1,783	528	—	87
Sudan	1,992	—	1,992	—	—	—
Nigeria	1,900	—	1,767	—	133	—
Kenya & Uganda	1,716	—	—	1,716	—	—
Tanganyika	1,376	—	—	1,376	—	—
Tunisia	1,274	316	—	958	—	—
Angola	1,220	—	837	364	—	19
Mozambique	1,109	—	1,035	—	—	74
Morocco	1,106	1,063	—	—	—	—
French Equatorial Africa	631	—	317	314	—	—
Madagascar	531	—	—	531	—	—
Gold Coast	500	—	490	—	10	—
Abyssinia	487	—	—	487	—	—
Italian Zones	435	—	—	435	—	—
Nyasaland	316	—	316	—	—	—
Sierra Leone	310	—	—	—	310	—
Mauritius	120	106	—	—	—	14
Reunion	79	—	—	79	—	—
Total	42,410	5,447	24,263	10,082	1,450	1,168

* Includes Senegal, Guinea, Ivory Coast, Togo, Dahomey, etc.

increase of 11.4 per cent. The average journey per passenger was 76.5 km., or an increase of 1.9 per cent. on the previous year. During the year under review, various improvements and renovations were carried out. New telegraph apparatus was installed in a number of stations, fresh plans for the new Central station at Athens have been studied with a view to minimising the number of necessary expropriations, and the first stages of the work are under consideration. Similarly, with regard to the new station at Salonica, the arrangements for the necessary expropriations are proceeding satisfactorily, and the work for the construction of the central part of the

building is under way. Preparatory work has been effected for the construction of the wings and the buildings to house the machinery and plant. The construction of a line linking the old station with the new one is also under consideration. In June this year it was announced that the Hellenic State Railways had acquired the Piraeus-Athens-Peloponnesus Railway of 815 km. (526 miles), metre gauge, which is the largest private railway company in Greece. This company had ceased to pay owing to road competition, and went into liquidation. The mileage of line still in private hands is now only 346.

LETTERS TO THE EDITOR

(*The Editor is not responsible for the opinions of correspondents*)

Early Surrey Railways

Lyndhurst, 56, London Lane,
Bromley, Kent
July 29

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—Recent correspondence in your columns on the subject of the Surrey Iron Railway, and its extension to Merstham, has raised many interesting points. Foremost is the valuable disclosure, made by Mr. Kenneth Brown, of there having been two bridges on the C.M. & G.; the location of the site of this second bridge may well be a matter of speculation, and I would trespass upon your space to the extent of making the following suggestions.

The road to the west of the tramroad at the place now known as Purley, but at that time marked by the Foxley Hatch toll gate, was a thoroughfare of some importance leading to Beddington and Mitcham, and might well have justified the erection of an arch at the point of crossing. If it be maintained that the bridge was south of Smitham, however, there is still the possibility that the Chipstead-Hooley road was the one concerned.

The new road clearly diverged at Smitham to follow the Hooley valley, and provided an easier, if more circuitous route to Reigate, though it was not until a series of "cut-offs" south of Merstham, from Gatton Park to Salfords, through Redstone Hill, was constructed, that the road became part of the recognised Brighton Road, so displacing the route *via* Chipstead which had been bridged by the C.M. & G. at Smitham.

As a means of providing an insight to the working of early tramroads, would it not be profitable to discover, if possible, the circumstances which brought about the closing of the two interesting and pioneer railways which centred upon Croydon? It has been stated that the Croydon Canal rendered unnecessary the existence of the Surrey Iron Railway, the waterway providing a more convenient means of transporting the traffic of the C.M. & G. to London; on the other hand, it has been affirmed with equal emphasis that, at certain periods, the canal was almost useless owing to lack of water, and that, in any case, even had this not been so, the quantity of goods carried by the C.M. & G. was insufficient to justify the maintenance of the line. Not all horse-drawn tramroads

were uneconomic, and it would appear that the full facts have yet to be made known.

Yours faithfully,

L. T. CATCHPOLE

Ordering of Copper Firebox Plates

21, Bennetts Hill, Birmingham 2

July 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR.—Our attention has been drawn to the article in your issue of June 21 on this subject, and we feel that it calls for some comment on our part in view of the misleading statements made by certain of the contributors to the discussion upon the paper read by Mr. E. W. Fell. The general impression which would be gained from the discussion is that the plate manufacturers are overcharging users of copper plates for cutting plates to shape. Such, however, is not the case. The manufacturers charge an extra of £2 a ton on the weight of the finished plate (not on the weight of the rectangular plate from which the shaped plate is cut as has been stated) for each one-sixteenth of area cut away; this extra has been scientifically determined and takes into consideration both the cost involved in cutting to shape, and the cost of rolling a proportion of material which eventually has to be scrapped; furthermore, due allowance is made for the residual value of this scrap copper.

In actual point of fact, calculations prove that in the majority of cases it is slightly more economical from the buyer's point of view to purchase shaped plates, particularly in the case of wrapper plates; it is only in cases where the purchaser is buying flat plates for flanging in his own shops that it may be more economical to buy rectangular plates, since in such instances some further trimming is necessary in any case. The particular critic of the manufacturers infers that they grant no credit for the scrap copper which is produced by shaping the plate, whereas by buying rectangular plates, the purchaser can dispose of this scrap at market prices. This, as we have stated, is not so, and we should be obliged if you would allow us to correct this false impression.

Yours faithfully,

WENHAM BROTHERS & CO.,
Secretaries,
Manufactured Copper Association

Publications Received

The Crewe Locomotive Works of the L.M.S. Railway.—The May-June issue of *British Machine Tool Engineering* is devoted so far as text matter is concerned to an exhaustive and well illustrated article dealing with the Crewe locomotive works of the L.M.S.R. As is appropriate in a journal of this kind, the article deals mainly with machine tools and machining operations on the various locomotive component parts, and the descriptions are rendered the more valuable as they

contain data concerning the handling of material at various stages, floor-to-floor times, feeds, and speeds, and such-like machinery details which alone provide a sufficient criterion of the work to be performed and the manner in which it is completed. Close-up views of the actual tooling represent a useful feature. The number of machine tools illustrated is profuse, and in the majority of cases they are shown in actual operation. In addition there are some general views of the erecting, boiler, and other departments. The article is prefaced by a brief and interestingly written historical

survey of the L.M.S.R. followed by sections entitled "The L.M.S. Today," and "The Crewe Loco Works." Here there are reproductions of old and modern locomotives, and an excellent portrait of Mr. W. A. Stanier, the Chief Mechanical Engineer of the L.M.S.R. The publication as a whole is very well done, and provides what may perhaps be regarded as a supplement at this later stage to the series of articles entitled "Reorganisation of Crewe Locomotive Works, L.M.S. Railway" which appeared in THE RAILWAY GAZETTE in 1929 and was subsequently reprinted in book form.

THE SCRAP HEAP

The Irish Transport & General Workers' Union has offered the Eire Government a loan of £50,000 free of interest for the duration of the present emergency.

TWENTY MILLION FARTHINGS

The Royal Mint has let fall the strange information that in 1939 it turned out more than 20,000,000 farthings, the biggest year's output in its history. There are now over 450,000,000 farthings in circulation, more than ten a head for every man, woman, and child in the country. Does anybody in one's acquaintance possess ten farthings? They are not used in automatic machines or in trains or buses. Where on earth do all of them go? Nobody seems to know. —From "The Manchester Guardian."

Employees of Class I railroads in the U.S.A. totalled 1,012,483 in the middle of May, according to a report of the Bureau of Statistics of the Interstate Commerce Commission. This figure shows an increase of 5.71 per cent., compared with May, 1939.

BLACKPOOL TO CARDIFF VIA CHINA!

While on holiday at Blackpool last year, a member of the G.W.R. staff of Cardiff Canton locomotive shed required a privilege ticket. Accordingly he made out an application, addressed it "Mr. Blackford, Loco. Foreman, G.W.R. Sheds, Canton," and posted it. That was in June, 1939. The letter was delivered a few weeks ago having in the intervening ten months taken a trip to Canton—in China! The full story of its adventures will never be known. The postmarks on the envelope suggest that, in the first place, it travelled with

regulation speed to China, where it arrived in July. What happened between that time and its reappearance in England in April is shrouded in the incomprehensibilities of the East. The envelope is covered back and front with endorsements in English, French, and Chinese. Back in London, an enlightened postal official saw something familiar in the combination, "G.W.R." and "Canton," and forwarded the letter to Cardiff.

R.E.C. POSTERS

Paying one of my periodic visits to the cheerful company of railwaymen—a world of their own, of course—I found them smiling at a poster. The poster is called "Clear for the Guns," and is to remind us that trains bearing guns have preference over mere passenger trains. The railwaymen agree, but they say they have never seen such a monster of an engine as that with the passenger coaches behind it.

The artist has apparently done his best to represent all the four railway companies in one engine. It has a Lord Nelson (S.R.) boiler, a L.N.E.R. maker's plate, a G.W.R. funnel, an S.R. steam dome, an L.M.S.R. number plate, and an L.M.S.R. type of tender, together with L.M.S.R. buffers, a G.W.R. snifter valve and, behind it, G.W.R. passenger coaches.

No doubt the extensive section of the public that knows all about railway engines has already enjoyed the joke with the railwaymen themselves, but I cannot vouch for that; they are not to be found at their usual places. The railway companies have never discouraged the parsons, retired engineers, teachers, students, and children who used to gather at the end of King's

Cross, St. Pancras, Euston, and Paddington, notebook in hand, to survey the engines. The companies, indeed, have the same affection, if not the passion, for engines. Talk of Fifth Column, however, has waved the locomotives' stout followers into oblivion. Nobody dare now be seen at the end of a platform notebook in hand. They scarcely turn up to look.—From "The Star."

COINCIDENCES

The July issue of our associated journal *The Railway Magazine* contains the 360th article by Mr. Cecil J. Allen on "British Locomotive Practice and Performance." The period so covered is actually a little over 30 years, as for the first eighteen months from August, 1909, his contributions were quarterly, and by a curious combination of circumstances the September, 1930, contribution was omitted. It is a coincidence that Mr. Allen's 50th article, in August, 1914, marked the first month of the 1914-1918 war, and his 100th article, in November, 1918, the last month of fighting in that war; while his 350th article, in September, 1939, coincided with the first month of the present war. Also his 150th article, in December, 1922, celebrated the last month of the separate existence of British railways before the grouping. The 200th, 250th, and 300th articles passed without any coincident events of special note; and we hope it will not be necessary to wait until the 400th of the series for the end of the present hostilities.

"L.M.S."

"That's a braw spoon ye got frae yer cousin, mither. What was her name?"

"Lizzie Mary Smith."—From "The Journal of the Incorporated Clerks of Works Association of Great Britain."



We are indebted to the Editor of "Colvilles Magazine" for this illustration showing old stone railway sleepers and a chair recently unearthed at the Clyde Iron Works. Holes in the stone sleeper blocks were fitted with wooden plugs into which were driven the iron spikes holding the chairs

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

CANADA

C.N.R. Montreal Terminal Works

All work on the new Montreal terminal of the Canadian National Railways will be completed by the autumn of 1941, and its track layout will be available for use next spring, Mr. C. D. Howe, Minister of Transport, informed the Canadian House of Commons. Completion of the project was necessary to facilitate a rapidly-increasing volume of traffic on Montreal Island, which would otherwise become a serious bottleneck for vital freight and passenger movement, the Minister said. Those who criticised the fact that they were proceeding with the work in wartime merely showed their complete lack of conception of what was involved, said Mr. Howe, as he proceeded to explain it at some length.

History of the Scheme

There was already a sum of \$22,000,000 or \$23,000,000 invested in the scheme which would be completed at a cost of another \$4,000,000 or \$5,000,000. The new terminal did not merely replace existing facilities. In 1914 five railways were merged into the Canadian National Railways, but the four terminals in Montreal continued separate operation. However, a beginning was made to correct this situation in 1927-31. There was no connection between the four C.N.R. stations in Montreal, each having its own passenger and freight yards, these yards being seriously congested and quite inadequate for the present volume of traffic. The need for improved terminal facilities became so great with the swelling of traffic between 1925-29 that a "tremendous project" costing \$53,000,000 was undertaken. By 1931, \$16,800,000 had been spent on its development. Then the depression set in.

Reason for Proceeding with Work

A rise in traffic in the last 18 months caused the situation to be reviewed again by the C.N.R. directors. In their 1939 budget they decided to carry on the project, but in "decidedly modified form" involving only another \$12,500,000 beyond the \$16,800,000 already spent. It was estimated that adequate return would be received on this expenditure through improved operating facilities. The Government joined with the railway in covering the cost of labour as an unemployment relief work. Last year, \$4,500,000 were spent in addition to commitments carrying over this year.

With the outbreak of war the situation was again reviewed by the directors. They decided they could cut the \$12,500,000 figure by about \$2,000,000 and still retain the project's essential operating features. The Government was unable to help further, because unemployment was no longer the problem it had been. Last October or

November the directors decided to carry on with the terminal construction because of the difficulties of railway operation in that area, provision being included in the railway's 1940 budget presented to the Government last January.

UNITED STATES

Santa Fe Main Line Doubling

On June 1, the last 23-mile section of line on the Atchison, Topeka, & Santa Fe Railroad from Chicago to the Pacific Coast was converted from single to double track. The completion of this length of the second track between Joseph City and Double Track junction marks the conclusion of the doubling of the whole main line throughout, which was begun as long ago as 1897. This final length of second track consists of 131-lb. material, and its construction involved the building of two major girder bridges 300 ft. and 240 ft. in length respectively. The overall length of continuous double line by this route is 2,228 miles.

MEXICO

The National Railways Position

The unsatisfactory state of the finances of the National Railways was the subject of a discussion when President Cárdenas summoned the representatives of the Railway Workers' Syndicate and the Council of Administration of the National Railways to an audience on May 30. The Secretary of the Treasury was also present, and emphasised the importance of the commitments for rolling stock supplied from other countries, debts which the President said must be paid, as the prestige of the country was at stake. The representatives of the syndicate referred to the arrears of liabilities with which the railway administration was burdened when it was handed over to the workers in 1938, and of which the Government had undertaken to defray half. They also submitted that the promised tariff revision had not materialised, and the railways were operating now with the same charges as were in force fifteen years ago, although working costs had risen so high. At a second audience the workers' representatives were handed a memorandum with the decisions of the Federal Government, of which the principal points were that the railway administration should resume the payment to the Government of the 5.64 per cent. of gross receipts, as provided by the Law, as well as the 10 per cent. tax and stamp duty. On the other hand, the Federal Government would order an investigation into the question of tariffs and the immediate application of certain increases, on condition that the workers' administration made serious efforts to settle the arrears

of its obligations to foreign creditors, and reorganise the railway service in such a way as to increase efficiency, improve discipline, and reduce expenses. Apart from the memorandum, it was agreed that the Treasury should call upon the State services, such as the Post Office, to settle their arrears owing for railway transport. The workers' administration undertook to give immediate effect to the President's memorandum, and it was understood that if the present council of administration (which took office after the resignation of the previous council early in the present year) did not succeed in placing the railway service, with the aid of the tariff revision, on a sound financial basis, the Government would consider taking over the concern.

[The circumstances in which the working of the National Railways was confided to a council of railway workers were described in THE RAILWAY GAZETTE of September 9, 1938, at page 449—ED., R.G.]

CHINA

Chungking's Three Life-lines

Although the Japanese capture of the city of Nanning, in the province of Kwangsi, had seriously interfered with traffic from French Indo-China passing by rail towards Kwelin, Hengchow, and Hankow, a certain amount had been filtering through, and more had found its way by road northwards via Kweichow Province to Chungking. Now, however, the Japanese have captured Lungchow and the surrounding district on the Sino-Tongking border, and have effectively stopped traffic leaving Indo-China over its eastern frontier.

There still remains the French Yunnan Railway, however, to feed Kunming and Chungking with sea-borne freight, so long as the French Colonial authorities are able to withstand the Japanese threats of dire consequences should this traffic also not cease.

Meanwhile, further representations have been made to the British Government concerning the Japanese demand that traffic by the Burma-Yunnan road to Kunming and Chungking should be stopped, a demand with which it is difficult to dissociate the reports indicating the presence of powerful Japanese forces on the British border, on the mainland opposite Hong Kong. [The British Government has since decided to close the road to arms traffic for three months—ED., R.G.]

MANCHUKUO

New and Accessible Coalfield

A rich deposit of anthracite is reported to have been discovered near Tienssufu, about 70 miles north of Antung and on the Mukden-Antung railway. The new coalfield, said to contain between 500 and 800 million tons of fuel, has the advantage of being only about 90 miles from the new port of Tatung at the mouth of the Yalu river, which will be directly connected with it by the railway through Antung.

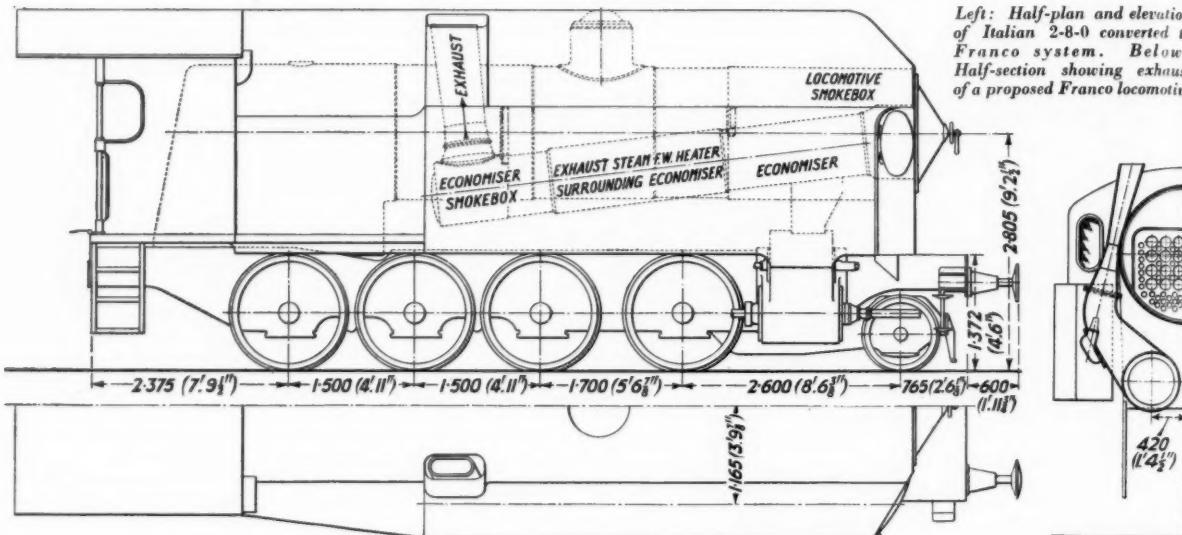
FRANCO LOCOMOTIVE IMPROVEMENTS

Latest developments of the Franco system of feedwater heating on Italian State Railways locomotives

THE original Franco locomotive built in Belgium (see THE RAILWAY GAZETTE for December 2, 1932) was an articulated locomotive containing numerous unusual features, but the Franco proposals today embody little more than a comprehensive system of feedwater heating. Three years ago one of the Italian State Railways' 4-6-0 "back-to-front" locomotives of Class "670" was equipped with the Franco

exhaust steam set on each side of the locomotive, from which the steam is led to separate blast pipes, and the economiser gases to subsidiary smokeboxes for entraining by the blasts.

Under the most favourable conditions a fuel saving of 22 to 24 per cent. is claimed, and, without any change in the engine portion, the thermal efficiency is claimed to have been increased from 6.9 to 8.16 per cent. The saving in fuel,



exhaust steam feedwater heater and an economiser through which passed the flue gases from the boiler; both equipments were mounted on the tender. In 1939 the Italian State Railways decided to have converted to the Franco feedwater-heating system five standard passenger 2-6-2 locomotives of Class "685" and five of the 2-8-0 standard goods Class "740," and, as shown in the outline drawing reproduced above, the arrangements here are much more compact than in the earlier Class "670" rebuild.

As will be seen from the accompanying diagram of the 2-8-0, the equipment is carried entirely on the engine and not on the tender. Furthermore, the initial feedwater heater of the exhaust steam type is no longer a separate tubular fitting, but is in the form of a steam jacket surrounding the coldest part of the economiser. There is an economiser-

although due mainly to the full use made of the heat in the exhaust steam and in the flue gases, must be credited in part to the lower combustion rate on the firegrate, as in these conversions the firebox has not been altered. Despite the extra resistance of the economiser tubes and the 180-deg. bend in the gas flow, it is claimed that the Franco locomotives can operate with a draught in the boiler smokebox of $2\frac{1}{2}$ in. compared with about $4\frac{1}{4}$ in. under the same conditions in a normal boiler, but the corresponding draught in the final smokebox appears to be $5\frac{1}{2}$ in. It seems not unlikely, however, that some of the thermal improvement is due to more highly superheated steam, as in some, at least, of the conversions the number of superheating elements has been increased, and the cross-sectional area through the elements raised by 35 per cent.

Employment of Female Labour

After more than ten months of war, during which time large numbers of railwaymen have been released to join the Forces, the railways have reached the stage when the employment of women in place of men has become necessary. For the present, women are being employed only in the starting grades, such as goods and passenger porters, although during the last war they were employed in many other grades, such as engine cleaners, parcel porters, and ticket collectors. The agreement dealing with the employment of women on the railways, as recorded at page 101 last week, is with the National Union of Railwaymen and provides that, after serving a probationary period of three months, the women are to receive the minimum rates for male staff, which are 50s. in London, 48s. in industrial areas, and 47s. in rural areas. During the probationary period the women will

receive 4s. a week less than these rates. The women, however, will receive only the female war wage of 5s. 3d. a week as against the war wage of 7s. a week for male staff. The London Passenger Transport Board, as announced at page 53 of our July 12 issue, is also employing female staff to replace male labour. Like the railways, the board has released many members of its staff for the Forces and is now employing women as bus conductors on the Country Buses and the Green Line coaches. The agreement with the board was concluded with the Transport & General Workers' Union, and provides that the women are to receive 90 per cent. of the basic rate and war wage of the male conductors for the first six months, and thereafter the full male rate. The agreement accords closely with the conditions laid down in Industrial Court Award No. 1,755 in regard to the employment by local authorities of women conductors in place of men.

ELECTRIC TRACTION SECTION

L.P.T.B. Substation Equipment

A technical description of the rectifier installations on the Northern extension, comprising the Alexandra Palace, Barnet and Edgware Lines

Each of the three principal extensions of tube railways on which the London Passenger Transport Board was busy when the war began is to have substation equipment of different manufacture, G.E.C. for the Northern-East London installations, English Electric for the Northern Line substations, and B.T.H. for the Western extension of the Central Line. The contract for the Northern Line covered the supply of English Electric equipment for ten substations, including one main substation to which energy is fed at 11-kV 50 cycles three-phase from two generating stations. Three 1,500-kW 630-volt d.c. rectifiers are installed in the main substation, and two in each of the other substations. The 11-kV supply is brought into and distributed from stone cellular-type switchboards, and the d.c. output of the rectifiers is taken through high-speed breakers to track-feeder busbars, from which energy is supplied to the conductor rails through further high-speed breakers.

A 300-kVA 11,000/650- or 440-volt transformer is provided in each substation for passenger station lighting, and a 30-kVA 11,000/230-volt transformer is connected to all incoming feeders through fuses so that an auxiliary power supply is available at all substations if an incoming feeder is alive before any of the substation circuit breakers are closed. These transformers and the rectifier transformers are of the oil-immersed, self-cooled type, and are mounted in brick bays outside the substation.

Switchboards are provided in each substation for distributing the supplies from the auxiliary transformers. The nine subsidiary substations are normally unattended, but all are supervisorily controlled through duplicate radial pilot wires from a control room in the main substation. The apparatus in all substations is on two floor levels, and in all cases a separate switch room is provided for the oil circuit-breaker compartments.

The layout of all substations is generally similar, except that at the main substation a separate 11-kV switch house is provided and the upper floor contains the central control room equipped with supervisory control gear for the nine substations and local control gear for the main substation itself.

11-kV Switchgear

The e.h.t. switchgear is of the moulded stonework cellular type and is housed on two floors of the substation; the gallery accommodates the busbars and busbar isolators, and the oil circuit-breakers, current transformers and feeder isolators are accommodated on the rectifier floor. The equipment is completely phase-separated throughout, and the busbars are sectionalised so as to provide adequate facilities for cleaning and maintaining the equipment without total interruption of the supply. The layout of the cellular gear conforms with the latest Home Office and B.E.S.A. regulations, and of special interest is the fact that all auxiliary contacts, secondary terminals, fuses and links are accessible from outside the e.h.t. compartments. The incoming feeder cells are provided with compartments for accommodating isolators, high rupturing capacity fuses, and limiting resistances for the isolation and protection of the 30-kVA auxiliary transformers. A compartment is also provided in each

substation to house three single-phase auto-valve surge arrestors which are connected to the e.h.t. busbars and to earth through isolating switches.

E.H.T. Oil Circuit-Breakers

Each oil circuit-breaker comprises three single-pole, double-break units equipped with De-ion grid arc control devices and having a proved rupturing capacity of either 350 mVA or 500 mVA. The three units, mounted on a common steel-work frame, are operated by a common shaft and form a triple-pole group. This group is solenoid-operated, the solenoid supply being obtained from the auxiliary transformers via a metal oxide rectifier unit, and a d.c.-operated shunt trip coil is fitted. Arrangements are, however, provided so that the group may be hand-operated for maintenance purposes.

Each circuit-breaker group is complete with built-in lowering mechanism which allows one or more tanks or one complete single-pole breaker to be lowered for inspection purposes. A trolley is provided in each substation for removing tanks or single-pole units from the circuit-breaker compartments.

Isolators

The isolators are of the single-pole, pole-operated type, and the insulators are fixed by means of mechanical clamping devices, thus avoiding the use of cemented joints. The contact blades are liberally rated and adequate pressure is maintained by means of backing springs. Further, the isolators are fitted with safety catches to prevent opening under fault conditions. The doors of all compartments housing isolating switches are provided with toughened glass windows for inspection purposes.

Current and Voltage Transformers

The current transformers are of the bar primary type having porcelain-through insulators with metallised earth shields on the outside and air short-circuit potential shields on the inside. Each current transformer has two secondary windings on two composite cores consisting of mu-metal spirals inside cores of silicon steel. One winding is utilised for the operation of earth leakage protective relays only, and the other winding is used for overload protective relays, instruments and meters.

The voltage transformers are of the three-phase five-limb type and are provided with delta-connected tertiary windings for operation of the directional earth leakage protective relays, in addition to the 110-volt windings for instruments and meters. They are of the oil-immersed plug-in type fitted with flexible earth connections.

Control Cubicles

A control cubicle for each circuit-breaker is provided in each substation in order to give local control as an alternative to supervisory control. The control cubicle comprises a slate-fronted sheet steel cubicle with rear access doors, door switch controlled inspection lamp, and door bolts operated by a single locking handle. The cubicles are entirely self-contained and are bolted together to form a complete switchboard. The cubicles accommodate the necessary protective relays, instruments, meters, indicating lamps, control switches, change-

over switches, control circuit fuses, synchronising sockets and supervisory control interposing relays. In addition, a synchroscope and voltmeter are fitted on top of the board in order to provide check synchronising.

The control switches are spring returned to the off position, and are sequence interlocked in order to prevent re-energising the circuit-breaker operating solenoid once the circuit-breaker is closed. The change-over switches are provided so that any individual equipment may be operated locally, leaving the remainder under supervisory control.

Protection

Each incoming feeder is provided with two directional overload relays and one directional earth leakage relay, the relays being of the inverse definite minimum time delay type, equipped with current and voltage elements. Each outgoing feeder is provided with two non-directional overload relays and one earth leakage relay of the inverse definite minimum time-delay type. Each rectifier circuit is equipped with a high setting instantaneous triple-pole overload relay and a single-pole definite minimum time earth-leakage relay. The latter, upon operation, shuts down the rectifier auxiliaries, but the former merely trips the rectifier circuit-breaker, leaving the rectifier ready to be returned to service.

Auxiliary Supply Switchboard

The supply for the rectifier and general substation auxiliaries is obtained from the 230-volt side of one of the two or more 30-kVA auxiliary transformers. Arrangements are made so that one transformer is automatically pre-selected and in the event of a failure of this transformer the supply is automatically changed over to the other transformer without any of the auxiliaries shutting down.

Protective equipment is provided so that in the event of any one transformer becoming wholly or partially de-energised or failing to produce a balanced three-phase supply at the correct voltage, it is isolated on the l.t. side by the locking out of the change-over contactor. The switchboard comprises sheet steel cubicles with slate-front panels similar to those for the e.h.t. controls. The board accommodates the necessary contactors, isolating switches and protective relays for the change-over scheme. In addition, knife switches and high rupturing capacity fuses for various sub-circuits are provided together with the necessary contactors, knife switches and fuses for the two rectifier units for the oil circuit-breaker solenoid supply. These latter contactors and isolators are interlocked so that the two rectifier units cannot be utilised together.

Batteries

A Nife nickel-cadmium alkaline battery of 50 cells having a capacity of 45 amp. hr. and an average discharge tension of 60 volts at a 10-hr. rate, is supplied at each substation for the various shunt trip coils and relays. A metal oxide rectifier equipment is provided, and operated from the 230-volt auxiliary supply, for trickle or alternatively quick charging of the above battery. The supply from the battery is brought to an incoming knife switch and fuses mounted on a slate-fronted sheet steel cubicle. A number of knife switches and fuses are also mounted on this cubicle for distributing the battery supply to the various control boards.

Transformers

Each 1,500-kW rectifier equipment includes a main transformer having a mean rating of 2,015 kVA and having 3/6-phase windings. The secondary windings are connected in two double-star groups with a common interphase reactor so that each of the 12 rectifier anodes is connected to a separate winding, thus ensuring equal load sharing without the necessity for anode reactors. The six-phase connection was chosen by reason of the inherent simplicity of the windings with consequent robustness and ability to withstand severe short circuits. The primary windings of the transformers in alternate substations are connected in delta and star, thus minimising the effect on the e.h.t. system of the harmonic voltages resulting from rectifier operation.

The transformers normally operate at 10,750 volts, but tappings, selected by means of an off-load switch, are provided



Interior of substation showing English Electric steel tank rectifiers

so that the normal d.c. voltage may be obtained with a.c. voltages of 10,000, 10,250, 10,500 and 11,000. The transformers are of the oil-immersed type and are mounted outside the substations. The secondary connections comprise bare copper strips taken via porcelain wall bushings to the rectifier anode terminals, and the primary connections comprise copper strips from an adjacent wall mounting cable box. These latter strips may be removed and a small step-down transformer inserted so that the main transformer secondary voltage is stepped down to a value suitable for bake-out purposes.

Rectifiers

Each rectifier comprises a 12-anode water-cooled steel-tank unit and each carries a specified load of 2,380 amp. continuously, with overloads of 3,570 amp. for two hours and 7,140 amp. for five seconds. The layout is clean and simple, and this may be attributed partly to the English Electric patented barometric seal. This is similar in construction to the normal barometric seal, but the seal chamber contains an iron plunger which is lifted when in operation by the surrounding solenoid so that the mercury level falls below the bottom of the barometric tube, thus giving a clear path for the gases being exhausted and enabling a high pumping speed to be obtained with simple pumping apparatus.

The initial establishment of the arc and its maintenance at no load are effected by an auxiliary d.c. supply obtained from a small three-phase glass-bulb rectifier. With this arrangement a central ignition/excitation anode, together with two auxiliary excitation anodes, suffices for both ignition and excitation. The system has the advantage of being absolutely stable under all possible conditions of rectifier loading and temperature, and achieves this end with the minimum number of vacuum seals.

The main rectifier cooling system and the mercury-vapour pump cooling system operate in conjunction with small centrifugal water-circulating pumps and air-blast coolers specially designed so as to give quiet operation. The main cooler fan is automatically controlled by a thermostat in the main cooling system so that the fan is shut down at light loads, thereby minimising light-load losses.

The control gear for each rectifier is contained in a sheet

steel
so the
assoc
conta
from
fore
feede
vacu
The
sequ
corre
plete
men
The
other
and
break
indiv
auxi
ing
syst
trip
syst
of a
conta
Mi
pan
alth
sec
break
oil
oper
auto
neg
break
trac
prov
cubi
of
read
a v
when
cuts
allo

T
spec
sys

steel cubicle mounted in the rectifier enclosure, and arranged so that the rectifier starts up automatically upon closing the associated a.c. oil circuit-breaker either by remote or local control, or by hand. The supply for the auxiliaries is obtained from the auxiliary switchboard described earlier, and therefore a supply is available for as long as one of the incoming feeders is alive. Advantage is taken of this fact to run the vacuum pumping apparatus continuously.

The control apparatus normally follows the intended sequence of operation, but should any device fail to function correctly either on starting or under load conditions, a complete system of interlocked protection ensures that the equipment is shut down, and locked out of service without harm. The protection of individual auxiliary motors and certain other devices such as excitation, barometric seal solenoid, and mercury vapour pump, is given by miniature circuit-breakers having thermal and magnetic releases. Other individual devices are protected by fuses. Each rectifier auxiliary a.c. system as a whole is protected by a high rupturing capacity triple-pole cut-out with thermal releases. A system of core balance earth-leakage protection operating to trip out the unit is also provided for each rectifier auxiliary system. An interesting feature of this control is the provision of an electromagnetic opening delay where necessary on the control devices in order that a change in the source of auxiliary supply may be made without interruption of the d.c. output.

Mounted alongside the rectifier control cubicle is a control panel for the rectifier high-speed reverse-current d.c. breaker, although this breaker normally closes automatically a few seconds after the rectifier starting operation is complete. This breaker is interlocked with the oil circuit-breaker so that the oil circuit-breaker is tripped should the high-speed breaker operate. Further, the operation of the high-speed breaker is automatically followed by the operation of a contactor in the negative connection from the transformer. The high-speed breaker and contactor are connected through isolators to track-feeder busbars described below, and a kWh meter is provided for each rectifier. The high-speed breaker control cubicle also contains loading gear to prevent the occurrence of the no-load voltage rise experienced with inter-phase reactor transformer connections. The apparatus comprises a voltage relay which cuts in a 15-amp. loading resistance when the voltage rises to 662 volts, and a time switch which cuts out the resistance after a predetermined time. The time allowed covers normal no-load periods.

D.C. Switchgear for Outgoing Feeders

The d.c. switchgear includes busbars, isolators and high-speed breakers for the positive feeders, and since the track system is operated with both conductor rails insulated from

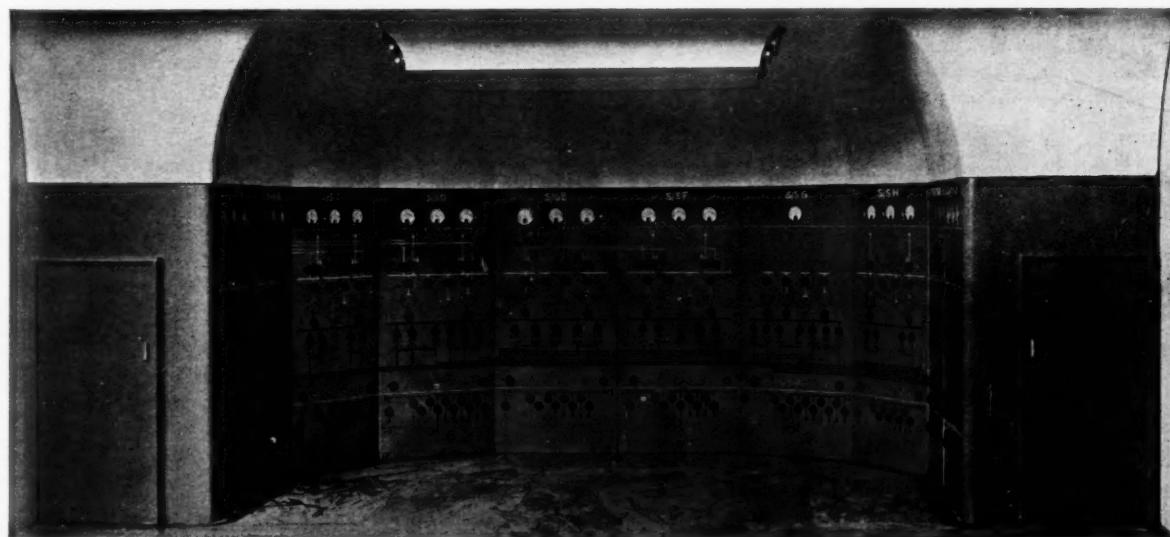
earth, busbars, isolators, and contactors are provided for the negative feeders. The equipment for the supply to the positive conductor rail is situated on the gallery of the substation, and that for the negative rail is on the rectifier floor—a precaution against fire and to ensure maximum safety in operation.

Busbar and cable isolators are provided for each track-feeder circuit, and busbar isolators only for each incoming rectifier circuit. Selection gaps in the positive and negative conductor rails are located near each substation and each section of rail is fed at either end from adjacent substations. Coupling switches are therefore provided for each pair of track-feeders to permit the feeding of two sections of track through a single breaker for short periods in order to assist maintenance work. The isolators are all mounted on individual slate panels supported on steel frames cemented in brick walls. The busbars are provided with expansion joints and are separated from the isolators by a moulded stonework shelf, below which a vertical stonework barrier separates each track-feeder isolator. An aluminium cell surge arrester is connected between each busbar and earth *via* high rupturing capacity type cartridge fuses and isolators. The high-speed breakers and negative contactors are supported on concrete plinths at the rear of the brick walls which carry the associated isolators, and connections between the isolators and breakers or contactors are made of copper strip with robust clamps at all joints.

The high-speed breakers for the track and escalator feeders are provided with directional overload trips. They are interlocked with the associated negative contactors so that operation of the high-speed breaker is followed by the operation of the associated contactor. The supply for closing the feeder high-speed breaker is normally taken from the d.c. busbars, but change-over contactors are provided so that in the event of the busbars being dead the breakers may be closed by means of a supply obtained from an adjacent substation *via* the conductor rails. The control cubicles for the feeder circuit breakers are of the slate-fronted sheet steel type identical in construction with those for the e.h.t. circuit-breakers. The cubicles accommodate the necessary interposing relays, indicating lamps, control and change-over switches, control relays and control circuit fuses.

Lighting Switchboard

A lighting switchboard comprising slate-fronted sheet steel cubicles is provided in each substation for the control of the transformer air compressor and passenger station lighting feeders. The cubicles are equipped with solenoid-operated air-break circuit-breakers, instruments, supervisory interposing and protective relays, meters, contactors, control switches, control change-over switches, and control circuit



Interior of control room showing panels for Northern Line substations

fuses. Busbars and cable isolators are provided for the compressor and lighting feeders but busbar isolators only for the supply transformer. The transformer cubicle accommodates a reverse power relay which is additional to the three overload trips in the circuit-breaker. The supply for the transformer circuit-breaker solenoid is taken from the rectifier used for closing the oil circuit-breakers, but separate rectifiers supply the solenoids of the compressor and passenger-station feeder circuit-breakers. The supply for closing these latter breakers is normally taken from the busbars, but change-over contactors are provided so that in the event of the busbars being dead the breakers may be closed if one feeder is made alive from an adjacent substation. In substations where two lighting feeders are provided a change-over isolating switch is installed to permit the feeding of the lighting circuits through one breaker so as to assist maintenance work. Watt-hour meters are provided for metering the power taken by the lighting circuits and by the compressor unit and sub-circuits.

Circuit Breakers

The air circuit-breakers supplied are especially suitable for use on low-voltage circuits where a high interrupting capacity is required and where the increased fire safety factor brought about by the elimination of oil is a consideration of major importance. The breakers have a proved interrupting capacity of 25 mVA at 440 and 650 volts three-phase 50 cycles. They are all triple-pole with an adjustable series operating overload trip on each pole; in addition, a d.c.-operated shunt trip coil is provided. The main contacts are of the silver-faced copper butt type. An ample high-pressure line contact is obtained from the action of substantial springs, which also make for an extremely fast break.

Both arcing and secondary contacts are fitted. The former make contact first, followed by the secondary contacts which make in advance of the main contacts. In this manner the main contacts are afforded the maximum protection against burning during closing and opening. The construction is such as to avoid the use of long flexible connections to the

arc and secondary contacts. These contacts are formed by mounting inserts of special arc-resisting non-pitting alloy on a substantial base, the moving contacts being bolted solidly to the main moving arm. The stationary base is spring-mounted on the panel within a housing so that considerable movement radially is allowed.

The arcing contacts on each phase are enclosed within an open-ended arc-chute, fitted with internal barriers of specially treated arc-resisting insulating material and arranged to form a series of parallel narrow vertical vents. A segment is cut away in each plate, so that a tapering slot is formed in which the arc is blown and subsequently split up and de-ionised by the plates, so preventing its restriking after a zero pause. Insulated iron inserts are placed at the upper end of the internal barriers to ensure extinction within the enclosure.

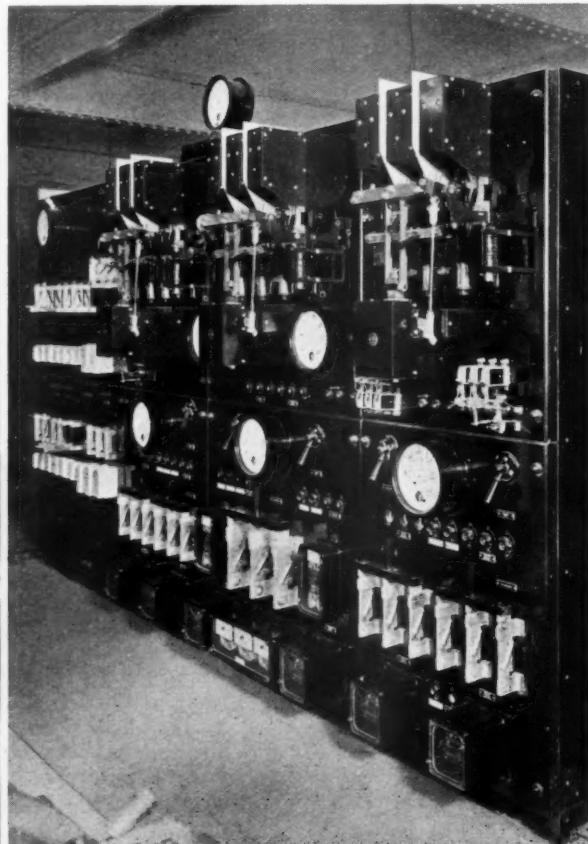
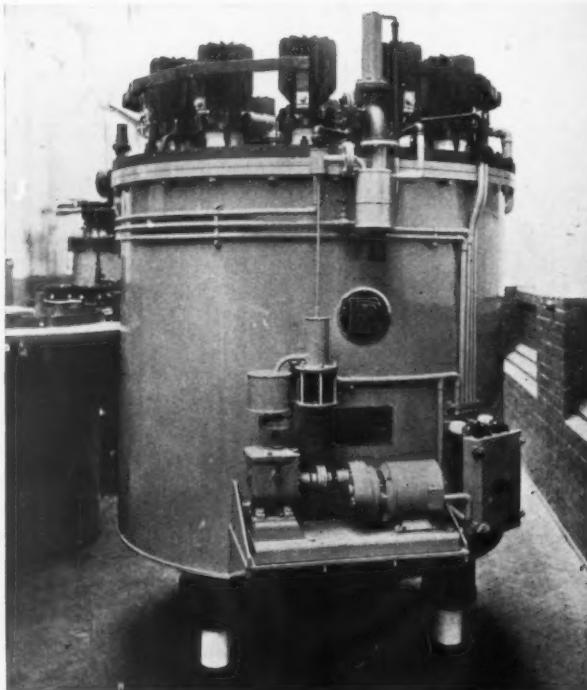
The moving contact assemblies of the single poles are operated simultaneously by means of a substational insulation coupling bar. The mechanism is trip free, substantially constructed to withstand the heavy contact pressures. Piston-type air dashpot buffers are used to absorb the thrust at the end of the opening stroke. A removable insulated operating handle is provided.

Supervisory Control Gear

The supervisory remote control equipment is on the Standard Telephones & Cables Limited constant total code pre-selection system, and is designed to cover the control and indication of the h.t. switchgear, the d.c. high-speed breakers, the lighting feeder switches, signals motor-generators, and signals feeder switches, and also caters for meter readings of rectifier load, d.c. busbar volts and air pressure, and in addition supervision of the special tunnel trip circuits. Metering is by the variable-frequency telemetering system developed by Standard Telephones & Cables, whereby continuous metering does not interfere with d.c. impulsing on the same pair of pilots. Items of switchgear can be pre-selected and then instantly controlled, with immediate indication that the control has been effected.

Right: 650-volt three-phase lighting switchboard in a Northern Line substation

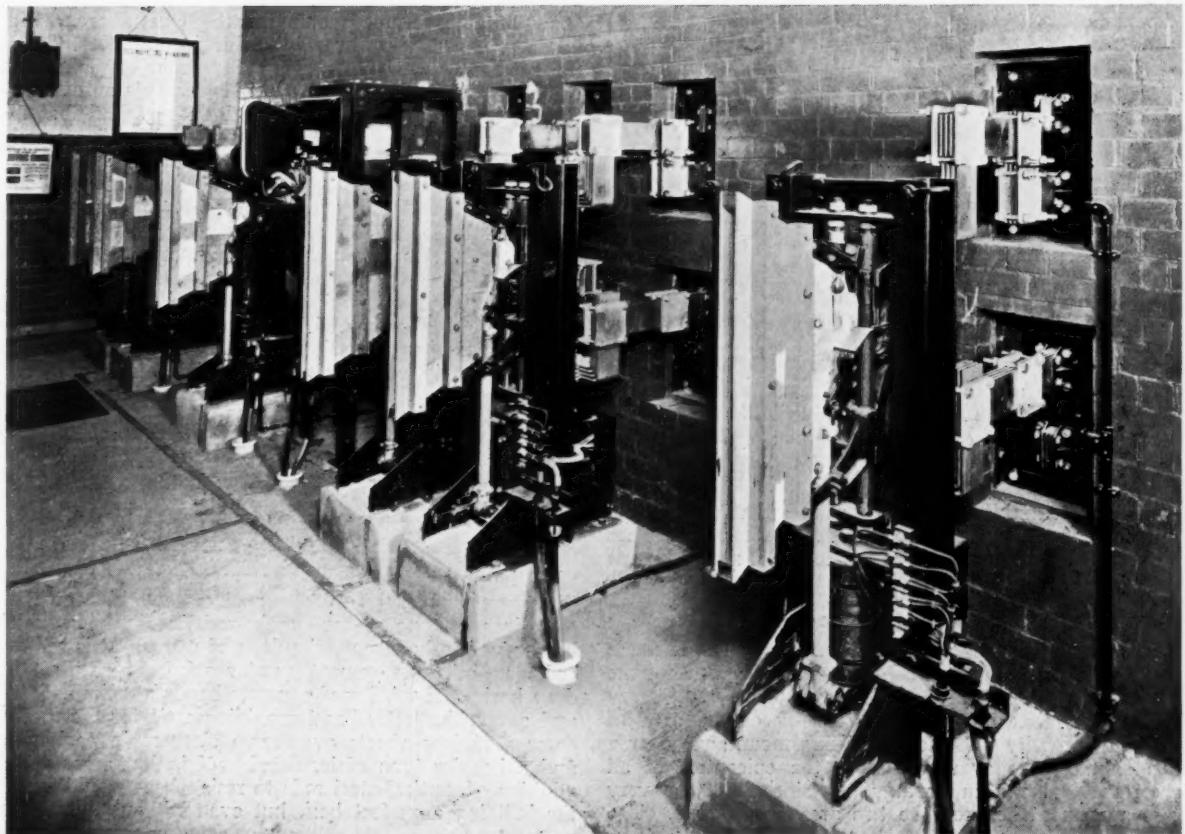
Below: 4,000-amp. English Electric steel tank rectifier





Left : Rectifier and high-speed circuit breaker control cubicles in one of the new Northern Line substations. Behind can be seen one of the English Electric steel tank rectifiers, which has a continuous rating of 2,380 amp. at 630 volts d.c.

Below : Negative feeder contactors and busbars installed in one of the substations equipped by English Electric on the Northern Extension



EARTHQUAKE RECONSTRUCTION IN INDIA

Measures taken by the North Western Railway to insure that all railway buildings throughout the danger zone in Baluchistan are earthquake-resisting

FIVE years have now passed since the disastrous earthquake occurred in the darkness of early morning on May 31, 1935, in which some 20,000 persons, including about 650 railwaymen and their families, lost their lives. As a result of reconstruction during these five years and of extensive construction to anti-seismic standards in previous years, practically all property belonging to the North Western (State) Railway in Baluchistan has now been rendered reasonably safe against earthquake. The standards of protection provided may be seen from the sketch map below.

One of the most difficult problems to be solved in formulating a policy and framing an estimate for the cost of the reconstruction project was the extent of the danger area and the degree of security to be provided in areas outside that affected by the 1935 earthquake. The distortion of the Baluchistan mountain region caused by the gradual convergence of two deep-seated and stable masses

danger area so defined is that enclosed within the shaded border—marked “area of negative gravity”—on the sketch map above, on which have also been marked the epicentres of the more severe earthquakes since 1852. It will be noticed how large a proportion—actually about 542 route miles—of the Quetta Division of the railway lies within the danger area. From the map it is also evident that throughout this area provision of security in one form or another to occupants of buildings has been assured by reconstruction to various earthquake standards, by strengthening with rail straps and tie rods, and by insuring safe exit by replacing heavy unsafe verandahs (which would fall on escaping occupants) with light tied-in framed types in conjunction with outward opening (or additional direct exit) doors.

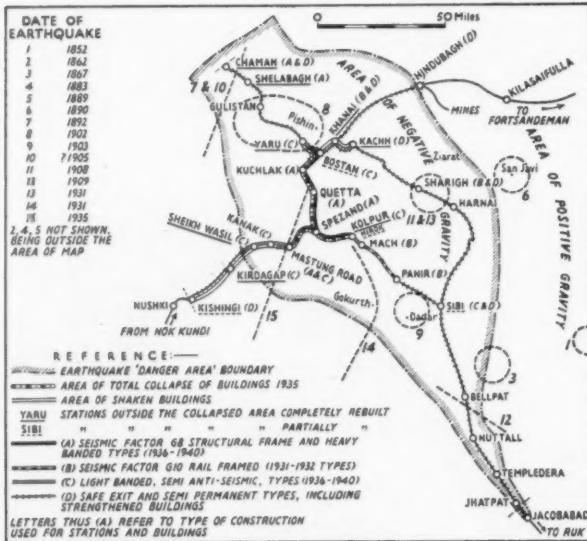
Seismic Factor and Development of Designs

After the earlier earthquake in 1931, the Railway Department (the only department in Baluchistan to do so) had introduced anti-seismic standards for all future construction in that region. Thus it came about that the few rail-framed, plain brick-panelled buildings erected in Quetta before the 1935 shock resisted that disaster undamaged, though designed to a seismic factor of only one tenth of the force of gravity. The co-ordinating body set up by the Government to lay down requirements for future construction decided after extensive inquiries upon $g/8$ as a suitable seismic factor for the Quetta area, with lower standards elsewhere in Baluchistan. A study of the ruins reveals that small buildings built of plain brick in cement were not destroyed. It is the opinion of many that a factor of $g/8$ is unnecessarily severe and that the factor standard in Japan, Italy, and California, namely $g/10$, is sufficient for even the most important buildings in Baluchistan.

Investigations having indicated that—to comply with the Central Quetta Reconstruction Committee's requirements of structural frames for all important buildings—reinforced concrete was a more suitable material than concrete-encased steel, the greater part of the railway programme at Quetta and elsewhere in the zone of complete collapse has comprised reinforced concrete in structural frames in conjunction with brick-in-cement-mortar panels, reinforced at every sixth to twelfth course with pairs of $\frac{1}{8}$ -in. dia. steel rods. Roofs are of corrugated iron or asbestos cement sheets over 2-in. planking obtained by sawing up old sleepers. The cost of these single storey buildings is about 8s. 6d. a sq. ft. of floor area.

Improved Railway Type of Building

With relaxation in design requirements which took place after the project had been in progress for about two years, there was evolved by railway engineers working on their own lines, a type of earthquake-resisting building which has proved to be strong, simple, and cheap. It is built of ordinary brick in cement mortar reinforced with 9-in. deep horizontal reinforced concrete bands at plinth, lintels and eaves, the latter band providing a tie for the roof of corrugated iron sheets over sawn sleepers in cool areas and a heavier type of insulated roof in hot areas. The addition of vertical steel rods to resist shear would render the building a perfect box, but even without this refine-



Sketch map showing epicentres of earthquakes, areas of danger, total collapse and shaken buildings, and corresponding measures of protection afforded by different types of building

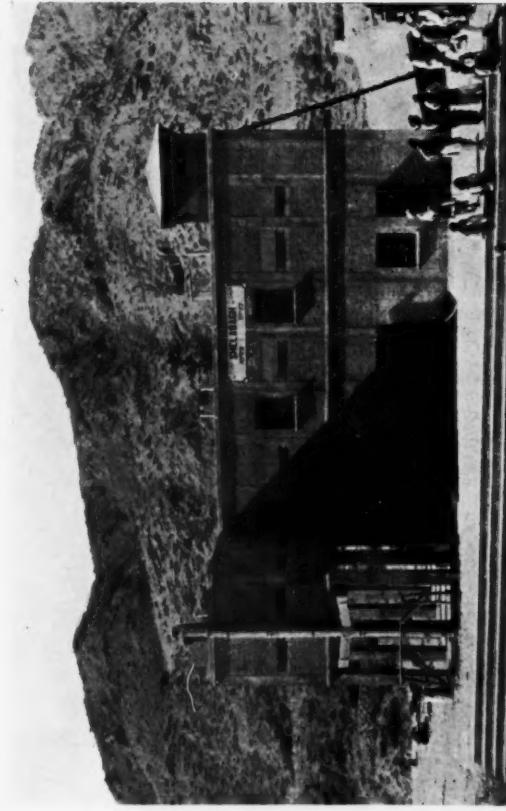
situated in Central Asia and Peninsula India respectively, with consequent excessive folding and occasional violent rupture giving rise to earthquake shocks, is a well known and widely accepted theory.

Investigations to Define the Danger Area

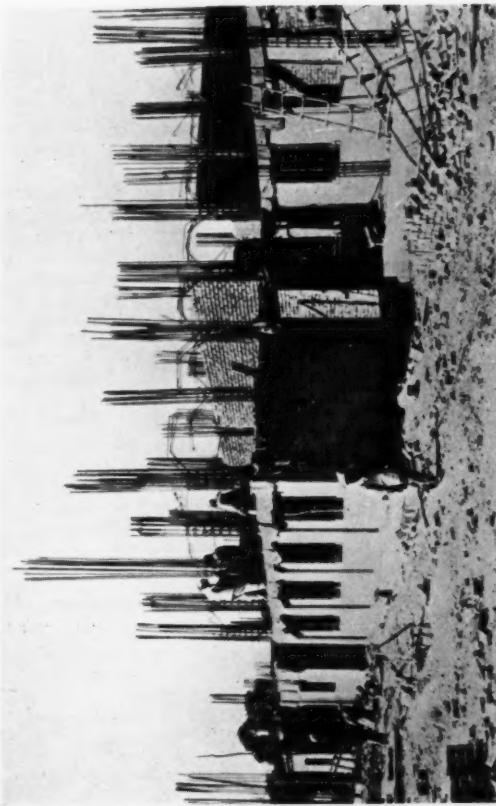
Arising from the 1935 disaster investigations were made to ascertain the extent of the Baluchistan earthquake danger area. It was noticed by the Geological and Survey Departments that by placing a tracing of the area of “negative gravity” (regions of rising mountains) over a map showing the area containing the epicentres of all important Baluchistan earthquakes since 1852, a very close agreement between the two areas was found. The



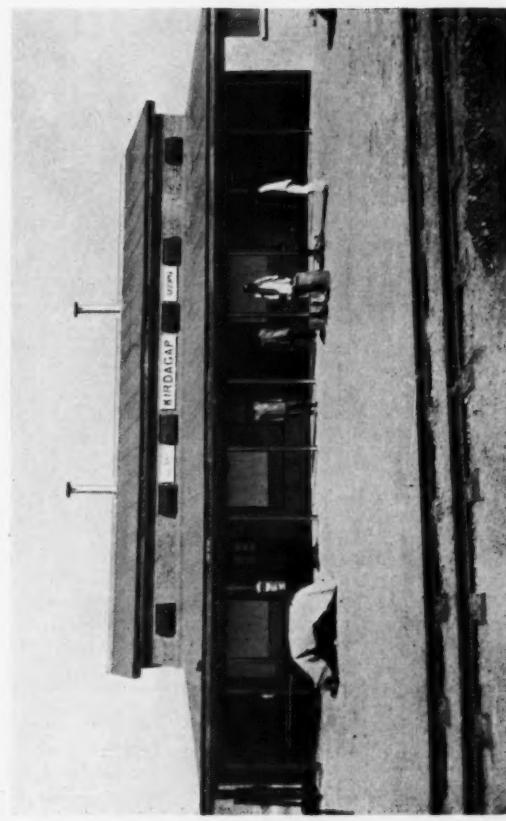
The new station at Quetta, as completed. The reinforced concrete structural frame gives a distinctive appearance to this type of earthquake-resisting construction



Combined railway station and military blockhouse at Shelabagh. Note loopholes in the upper storey and loop-holed steel doors to all openings



The new earthquake-resisting station at Quetta under construction, showing the reinforcing rods of the structural frame. Salvaged bricks give the interior walls a rough appearance



One of the new wayside stations in Baluchistan. This is a typical example of the "light banded" anti-seismic type of construction

ment the single-storey moderate sized building proves to be theoretically proof against a seismic force of g/8. Including asbestos cement flues and chimneys and other minor refinements, the cost of this "light banded" type is only about 5s. 9d. a sq. ft.

Proportioning Concrete and Economies in Cement

At an early stage in the project modern methods of proportioning concrete on the water-cement ratio and fineness modulus principles were introduced on the initiative of the then Assistant Engineer, Reconstruction, at Quetta, together with a comprehensive method of taking and breaking test beams to ensure compliance with the strength requirements. Not only was concrete of adequate strength thus obtained, but over £2,000 were saved by this means on the cost of the project, after deducting the extra cost of testing concrete and obtaining graded aggregates. The usual difficulties in enforcing proper compliance by con-

tractors and the usual evasions were encountered, but by the prohibition of plaster on concrete and the enforcement of destruction of doubtful work, and reconstruction at contractors' cost, satisfactory standards of quality were obtained.

The Cost of the Project

The sanctioned estimate for the project is £656,000, but economies have reduced the probable ultimate figure to about £563,000, a saving of £93,000. Apart from works such as provision of flush-system sanitation, land acquisition, roads, fences, safe exit, and strengthening, nearly 2,800 units of dwellings and other buildings have been constructed to earthquake-resisting standards. It is noteworthy that not only was the North Western Railway ahead of other departments in anti-seismic construction before the 1935 disaster, but has since then undertaken at moderate cost a most comprehensive programme of earthquake protection, and has been the first to complete it.

REINFORCED CONCRETE SLEEPERS

THE Ministry of Transport has recently prepared the following specification for the design of reinforced concrete sleepers for use on lines where speed is limited to 20 m.p.h. A note is appended to the specification that the engineer or purchaser should exercise his discretion in adopting the specification as it stands or in determining the most suitable design for his purpose, having regard to the life required, type of formation, and the conditions under which the sleepers will be used:—

1. A siding may be sleepered with reinforced concrete sleepers either by the use of
 - (a) transverse sleepers throughout, or
 - (b) on straight track only, a combination of transverse and unconnected block sleepers.

The proportion of transverse and block sleepers should not exceed one to three depending on the use of the siding. There should be a transverse sleeper on each side of the rail joint.

2. A bearing area of 300 sq. in. should be provided under each rail, and the sleeper should project at least 15 in. on each side of the centre line of each rail.

3. Transverse sleepers should have an overall length of 7 ft. 6 in. and may be of two types (A) and (B) conforming to the following conditions:—

- A. For use with F.B. rails. The moment of resistance under the edge of the rail should not be less than 40,000 in. lb. (positive).
- B. For use with B.H. rails. The moment of resistance at the bolt hole of the chair may be reduced by 30 per cent.

Transverse sleepers should have a moment of resistance of 4,000 in. lb. (negative) per in. of width at the centre portion, in order to provide for adequate strength for handling. Block sleepers should comply with (A) and (B).

4. The cover of concrete to the main bars should not be less than 1 in. In the case of transverse sleepers the maximum spacing for $\frac{1}{8}$ in. binding wire in the bearing area should be 4 in. and in the centre portion of the sleeper 6 in.; an equivalent volume should be provided if reinforcement of smaller diameter is used.

5. The concrete should be of 1:1½:3 mix in accordance with the D.S.I.R. (Department of Scientific and Industrial Research) Code of Practice of High Grade Concrete and should be thoroughly consolidated by vibration; stresses should not exceed those given in Table 2 of the code.

6. Steel used in reinforcement should comply with the D.S.I.R. Code of Practice and special attention should be given to the development of the strength of the reinforcement by bond hooking or other means.

7. Pads of suitable material between rail or chair and sleeper may be used though they are not considered essential. Through-bolt fixing is preferred provided that steps are taken to prevent rotation. Wood plugs are not con-

sidered to be satisfactory. Bolt holes should be spaced to suit purchaser's rails and/or chairs, the maximum tolerance being $\frac{1}{16}$ in. Widening of gauge where necessary for sharp curves should be provided for in the spacing of the through-bolt holes in sleepers or in the design of the rail fastening. Short grooves $\frac{1}{2}$ in. deep to receive sleeper tongs should be provided and situated so as to maintain full cover to the reinforcement.

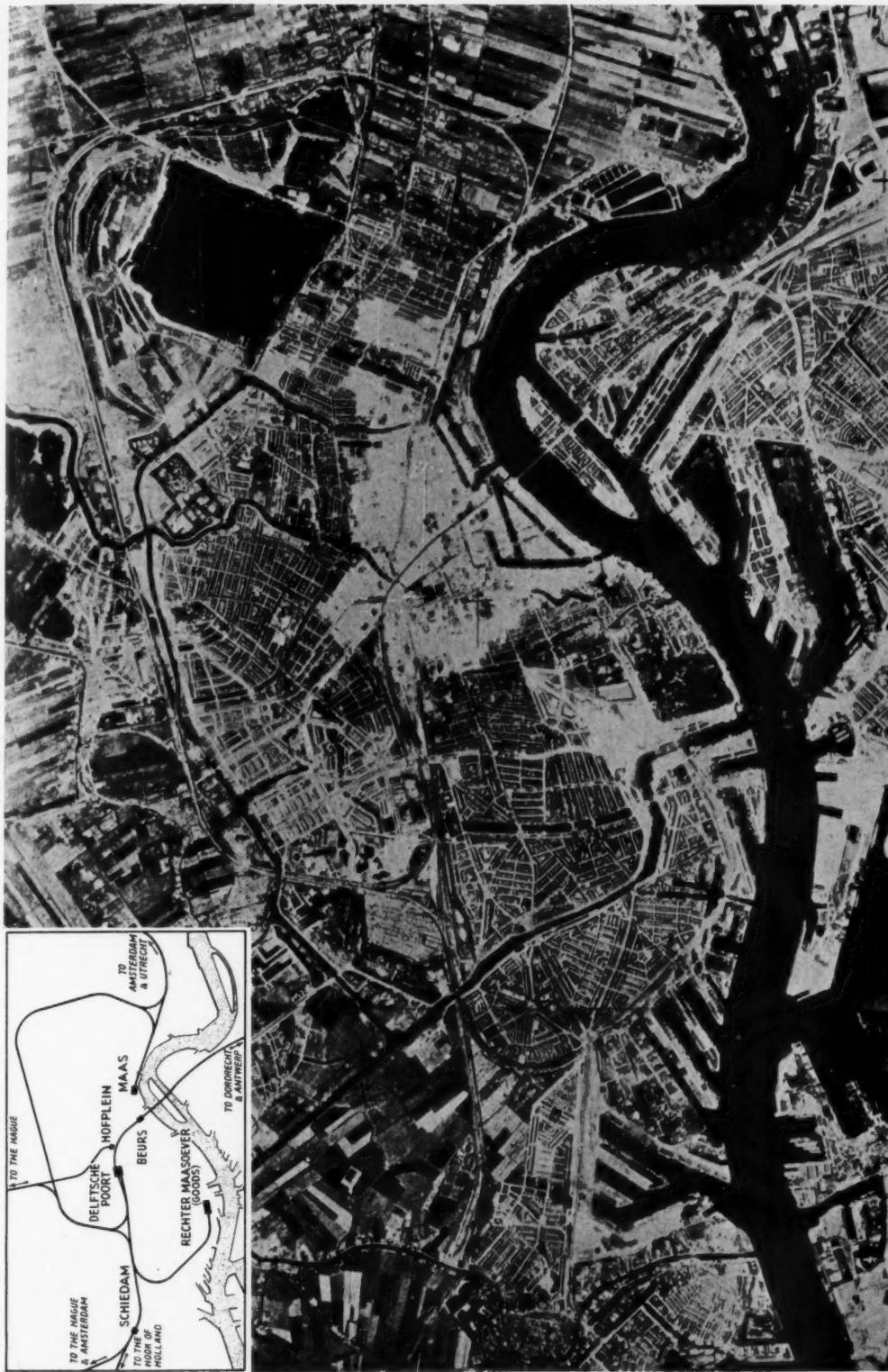
8. Precast units for switches and crossings are not considered practicable, and, when timber is unobtainable, *in situ* work provides a satisfactory solution.

9. Design should have regard to the maximum possible economy in timber and steel for moulding.

Brazil Railway Company

The Brazilian Government has followed up the earlier Decrees which nationalised the São Paulo Rio Grande Railway and the Port of Para, to which reference was made on page 662 of THE RAILWAY GAZETTE for May 10, 1940, by a new Decree relating to the Brazil Railway Company. This Decree nationalises the assets and rights of the company which exist in Brazil. The company is a holding concern registered in Maine, U.S.A. It acquired in 1912 important railway interests in Argentina including the control of the Cordoba Central, Argentine North Eastern, and Entre Ríos Railways, but these interests were disposed of some time ago. It also controlled the Sorocabana Railway, the extension of which to the Port of Santos has since been carried out by that company on its own account. At present the assets of the Brazil Railway Company consist largely of industrial undertakings in Brazil, including a cold storage business, a paper company, and a lumber undertaking. The new Decree alleges that the company has been unpunctual in its payments to creditors through the Paris, London, and Brussels exchanges, which, it is stated, has given rise to doubts regarding the public credit of Brazil. Most of the capital is French, British, and Belgian, and distributions at a reduced figure have regularly been made on the different series of bonds through the bondholders' committee, who will doubtless take the necessary steps to protect the interests of the bondholders.

B.S.S. FOR RAILWAY SIGNAL GLASS COLOURS.—The British Standards Institution has recently issued a revision of B.S. 623, Colours for Signal Glasses for Railway Purposes. This revision gives a slight re-grouping of the glasses and a modification to some of the limits. It also includes a diagram showing the area within which the proposed limits fall. Copies can be obtained from the British Standards Institution, 28, Victoria Street, London, S.W.1, price 2s. 3d. post free.



An Air Ministry photograph of Rotterdam showing the area of nearly two square miles in the centre of the city which was bombed for three hours by German aeroplanes on May 14. The invasion of Holland and Belgium began on Friday, May 10, and the main Dutch Army surrendered after the bombing on Tuesday, May 14. In the part destroyed only three buildings, including the town hall and the post office, were left standing, and these were damaged. The principal main-line railway stations (Delftsche Poort, and Maas) as well as the Hague local electric railway terminus at Hofplein were all damaged, and Beurs station on the main line to Dordrecht was utterly destroyed. Between Delftsche Poort and the River Maas, the line is on viaduct, but this does not appear to have been destroyed and was sufficiently repaired to permit of re-opening for electric train services on June 17. Further details are given on page 130. The bombed areas can be recognised by their white appearance

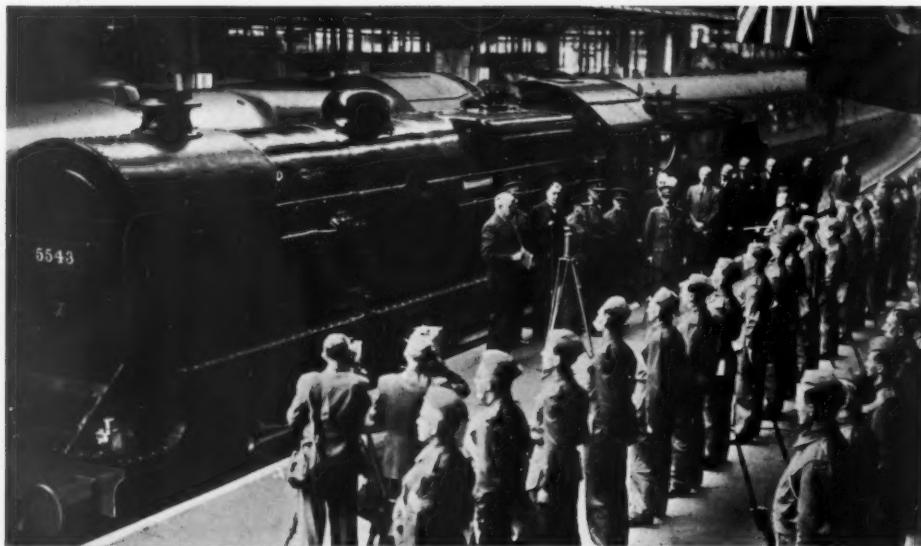
British Railways and the War—30



Left: Music and entertainment for members of the London Transport staff at one of the works canteens. Music during working hours is being broadcast in the railway, bus, and tram & trolleybus overhaul works, beginning on Tuesday last (see page 129)



Right: The Southern Railway mobile cinema which began a tour on Wednesday showing a film entitled "L.D.V." depicting the activities of the Southern Railway Unit of the Home Guard (see page 129)



Left: Lt.-General Sir Henry Pownall, Inspector General of the Home Guard, performing the naming ceremony of the L.M.S.R. "Patriot" class locomotive "Home Guard" at Euston station on Tuesday (see page 129)

RAILWAY NEWS SECTION

PERSONAL

G.W.R. CHIEF LEGAL ADVISER

The following appointments are announced as from July 29:

Mr. A. G. Hubbard, Solicitor, to be Chief Legal Adviser.

Mr. C. H. Whitelegge, Deputy Solicitor & Parliamentary Agent, to be Solicitor & Parliamentary Agent.

L.N.E.R. APPOINTMENT

Mr. A. L. Gibson, Continental Traffic Manager of the London & North Eastern Railway, has received the additional appointment of Acting Passenger Manager (Southern Area), in succession to Mr. C. J. Selway, whose retirement was announced in last week's issue.

Mr. Frank Potter, having recovered from his recent illness, has resumed his duties as Superintendent of the Line, Great Western Railway.

From the third Supplement to *The London Gazette* of July 26, 1940: Commands and Staff. The undermentioned relinquishes his appointment: Col. (actg. Maj.-Gen.) G. S. Szlumper, C.B.E., T.D., A.M.Inst.C.E., R.E.(T.A.), a spec. appt. and the actg. rank of Maj.-Gen. 31st July, 1940.

The directors of the General Electric Co. Ltd. in their annual report refer with regret to the death of Mr. S. D. White.

THE INSTITUTE OF TRANSPORT

The following candidates have passed the institute examinations successfully and are now admitted to Associate Membership:

Mr. F. J. Alvis, Southern Railway.

Mr. D. Beedie, Buenos Ayres Great Southern Railway.

Mr. R. G. Lord, L.M.S.R.

Mr. K. D. Morris, L.M.S.R.

Mr. G. L. Paton, Kenya & Uganda Railways & Harbours.

Mr. F. Schofield, L.M.S.R.

Mr. P. J. H. Theron, South African Railways & Harbours.

Mr. T. Williams, L.M.S.R.

Mr. J. Young, L.M.S.R.

Mr. A. J. Fletcher, L.M.S.R.

Mr. D. G. Howell, L.N.E.R.

Mr. S. M. Jayawardana, Ceylon Government Railway.

Mr. J. N. Murray, L.M.S.R.

Mr. H. H. Burbidge, G.W.R.

Mr. E. T. Shepherd, L.P.T.B.

Mr. C. D. E. Stephenson, Burma Railways.

MR. E. J. H. LEMON, VICE-PRESIDENT, L.M.S.R.

On August 1 Mr. E. J. H. Lemon, Vice-President of the L.M.S.R., resumed his normal work on operating and commercial problems which for over two years has been in the hands of Mr. Ashton Davies. Mr. Ashton Davies will remain as Vice-President

Mr. A. G. Hubbard, who has been appointed Chief Legal Adviser, Great Western Railway, has been Solicitor to the company since August, 1919. Mr. Hubbard was educated at Tonbridge, and after serving his articles in Chancery Lane, passed his Law Final Examination in 1895. In the next January he began a six months' pupillage at Paddington under the late Mr. R. R. Nelson, the Solicitor to the company, and at the expiration of that period was appointed an Assistant in the Prosecution and County Court section of the solicitor's department. Later he was engaged in the more general work of the solicitor's office, and became thoroughly familiar with its various branches, giving special attention to Chancery and Common Law business. During the last war he dealt largely with matters arising out of the emergency legislation of those years, and in February, 1919, on the retirement of Mr. J. E. Bowen, was appointed Principal Assistant to the Solicitor. During his term of office as Solicitor to the company, Mr. Hubbard has had to deal with many intricate problems such as the assessment of compensation to the railways after the last war, the release of the railways from Government control in August, 1921, the passing of the Railways Act, 1921, and the formation of the enlarged Great Western Railway Company under that Act. More recently there have been the acquisition of road powers by the companies in 1928, the important negotiations leading up to the passing of the Road & Rail Traffic Act, 1933, and the discussions on the "square deal." Lastly, there have been the protracted negotiations on the financial arrangements with the Government arising out of the present war.

Mr. Christopher Horsley Whitelegge, who has been appointed Solicitor & Parliamentary Agent, Great Western Railway, is a grand-nephew of Isambard Kingdom Brunel. He was educated at Charterhouse and on the Continent, and after some legal experience in the City of London, joined the Great Western Railway service in July, 1913. He is an LL.B. of London University with first class honours, and obtained second class honours in the Law Society's examinations. During the last war Mr. Whitelegge served in France from June, 1915, to February, 1918, mainly with the 18th Division. He rejoined the G.W.R. Solicitor's



Mr. E. J. H. Lemon
Vice-President, Operating & Commercial
Section, L.M.S.R.

engaged on certain special duties. On Mr. Lemon's return from the Air Ministry, the Secretary of State, in conveying his thanks to the L.M.S.R. board and to Mr. Lemon for the services rendered by him while Director-General of Production, made special reference to the great success of his work and the completion of the production programme in advance of the date contemplated, adding that it would be difficult to over-estimate the value of the services which Mr. Lemon performed at the Air Ministry and the extent to which the Air Council were indebted to him for his work and the company for making his services available.

August 2, 1940

Office in 1919, was appointed Parliamentary & General Assistant in 1931, and Parliamentary Agent in 1935. In September, 1937, he became Assistant Solicitor, and Deputy Solicitor early this year. A portrait of Mr. Whitelegge appeared in our issue of March 8 last.

Mr. F. H. Champion has been appointed Editorial Director of the National Savings Committee, and he succeeds Mr. Colin Brooks in charge of the Fleet Street Press Office. Mr. Champion was formerly News Editor of the *News Chronicle*, and before that was Special Correspondent and deputy News Editor of the Press Association. From 1914-1919 he served as a machine gun officer and machine gun company commander. Members of the editorial staff of the *News Chronicle* recently gave Mr. Champion a farewell luncheon, at which were present Messrs. Vernon Bartlett, M.P., Anthony Davies, Hugh Redwood, and H. M. Baird.

Mr. W. McAuley Gracie, M.B.E., has been re-elected Master of the Worshipful Company of Carmen for the ensuing year. Colonel E. W. Crawford, C.B.E., D.S.O., and Mr. W. A. Mitson, have been re-elected Senior and Junior Warden respectively. Mr. Gracie, who is Assistant Goods Manager, Southern Area, L.N.E.R., was elected Master of the Worshipful Company of Carmen for the first time last year. In our issue of November 17, at page 648, we published a picture of Mr. Gracie, Colonel Crawford, and Mr. Mitson, accompanying the Lord Mayor on his visit to the Law Courts.

Mr. R. D. Roberts, recently appointed District Goods & Passenger Manager, L.M.S.R., Chester, has received a number of tokens of goodwill from his associates at Garston docks, where he formerly occupied the position of Dock Superintendent. At the Exchange hotel, Liverpool, Mr. Ross Ryan supported by Mr. W. H. Harris and other prominent business men presented to Mr. Roberts, on behalf of the users of the port, 111 National Savings Certificates. The second presentation, a case of silver condiment sets and fountain pen was made on behalf of the Garston branch of the Transport & General Workers' Union. The ceremony was followed by a luncheon presided over by Mr. H. O. Pugh, J.P., Regional Port Labour Inspector for the N.W. Area. A third presentation, a handsome Spode china dinner service, was made by Mr. J. K. Wardle on behalf of the clerical and supervisory staffs employed at Garston docks.

Mr. Edward Baynes, C.B.E. (Colonial Administrative Service, retired), has been appointed Secretary of the Association of Consulting Engineers (Incorporated). Mr. Baynes was formerly Administrator of St. Lucia, West Indies, and retired from the Colonial Service two years ago.

Mr. Fleetwood C. Pritchard, who has been appointed Public Relations Officer, Ministry of Transport, is Chairman & Joint Managing Director of Pritchard, Wood & Partners Limited, Advertising Agents. He is Chairman of the Publicity Committee of the Advertising Association, and a Member of Council of the Institute of Incorporated Practitioners in Advertising, and of the British National Committee of the International Chamber of Commerce. Mr. Pritchard's advertising agency has acted for several Government departments, and handled the Road Safety



Mr. Fleetwood C. Pritchard

Appointed Public Relations Officer,
Ministry of Transport

Campaign, "Look Out in the Black-out," which appeared early this year. Mr. Pritchard was a Captain in the Royal Artillery during the last war, and served in France and Italy. He won the M.C. and the Italian Grand Bronze Medal. He is an M.A. of Pembroke College, Cambridge.

Mr. Walter McDermott has left estate valued at £45,505. Mr. McDermott, whose death we recorded in our issue of June 17, was for many years Chairman of the Consolidated Mines Selection Co. Ltd., and was a son of the late Mr. Edward McDermott, the joint founder, with Dr. Samuel Smiles, of our constituent paper, *The Railway News*.

Mr. R. Dixon, Chief Docks Manager's Office, Great Western Railway, Cardiff, is to be Dock Manager, Plymouth, as from September 2.

INDIAN RAILWAY STAFF CHANGES

Mr. R. Bonar has been appointed to officiate as Chief Mechanical Engineer, E.I.R., as from April 9.

Mr. K. C. De has been appointed to officiate as Controller of Stores, E.I.R., as from April 20.

Dr. F. E. R. Laborda has been confirmed as Chief Medical Officer, E.I.R.

Mr. P. D. Low has been appointed to officiate as Deputy Chief Mechanical Engineer, Electrical, E.B.R., as from March 26.

Mr. H. W. Puttick, Officiating Chief Electrical Engineer, E.I.R., has been appointed to officiate in a similar capacity on the N.W.R., as from April 11.

Mr. H. P. Renwick, Deputy Chief Mechanical Engineer (Provisional), G.I.P.R., has been granted 6½ months' leave as from April 24.

Mr. K. J. McNeill has been permanently promoted to be Deputy Traffic Manager, G.I.P.R., as from April 18.

Dr. S. C. Chatterjee has been confirmed as Chief Medical Officer, N.W.R.

Mr. I. T. St. C. Pringle, Deputy Traffic Manager, E.B.R., has been granted six months' leave as from June 1.

Mr. J. A. Tower, Chief Transportation Superintendent, G.I.P.R., has been granted three months' leave as from May 14.

Mr. F. R. Hawkes, O.B.E., V.D., Chief Commercial Manager, N.W.R., has been granted 4½ months' leave preparatory to retirement as from May 24.

Mr. J. E. Bottomly has been appointed to officiate as Deputy Chief Mechanical Engineer, G.I.P.R., as from April 24.

L.M.S.R. DIRECTORATE

The directors of the London Midland & Scottish Railway announce that Viscount Runciman has rejoined the board. It will be remembered that Lord Runciman relinquished this position last year to take up Government duties (see page 183 of our August 4, 1939, issue). The directors also announce that Sir Robert Greig, a Director and a Member of the Scottish Committee, has been appointed Chairman of the Scottish Committee in succession to the late Mr. Charles Ker. Sir Ian Bolton, a Partner in Messrs. McClelland, Ker & Company, Chartered Accountants, of Glasgow, and a Member of the Scottish Committee, L.M.S.R., has been appointed a Director.

W. & T. AVERY LIMITED.—Mr. Walford H. Turner, Chairman of the company, at the ordinary general meeting at Birmingham on July 23, said that on the outbreak of war the board had been approached by the Ministry of Supply for the loan of the services of the Managing Director, Mr. P. H. Mills, to assist in the organisation of supplies. Mr. Mills had recently been appointed Controller of Machine Tools. The effect of the war on the different phases of the company's normal business had naturally been varied, but Avery weighing, counting, and testing machines were a necessary part of the modern system of production, and had been required in all aspects of the armed effort.

TRANSPORT SERVICES AND THE WAR—49

London Transport musical interludes—L.N.E.R. mobile decontamination units—The Home Guard—S.R. film on L.D.V. work—Transport in Holland and Belgium—Rail travel in France

With a view to relieving the monotony and tension of wartime, the London Passenger Transport Board has made a series of experiments to see what forms of light entertainment would be most acceptable at its works. Experimental performances were received with enthusiasm, and as a result entertainments are being provided, beginning on July 30, at the Chiswick (bus), Acton (railway), and Charlton (tram and trolleybus) works. Music from records is being broadcast at intervals during the day at all three works, and in addition two concert parties and one cinema show a week during the lunch hour, and a concert by the London Transport Military Band at each of the works once every three weeks, have been arranged. The concert parties and the programme of films will be changed every week. At the concert party which inaugurated the scheme at Acton on Tuesday last the artistes, Jean Harley and George Baker, Grace Nevern, and Mario de Pietro, were heartily received by the men, who joined in choruses during the performance in their canteen.

L.N.E.R. Mobile Decontamination Units

The problem of providing cleansing and decontamination facilities at a large number of widely scattered places for railway staff affected by gas has been met by the L.N.E.R. by the construction of 30 mobile units. These units are additional to the decontamination centres established at important points such as Kings Cross, Sheffield, Manchester, and York. They have been formed by the conversion of old passenger coaches or brake vans, and contain separate compartments for undressing, shower bath, and dressing, together with stores and lavatory. The great advantage of the arrangement is that the units can be moved quickly to any required point within the area to which they have been allotted, and by this means all L.N.E.R. stations in England and Scotland can be covered.

Home Guard—Formerly Local Defence Volunteers

Within the past few days the title of the Local Defence Volunteers has been changed to that of the Home Guard, adopting a suggestion advanced by the Prime Minister in a recent broadcast. During the past few weeks the regular Military Forces, which in the earlier days of the war had been posted at strategic points on the British railways to guard vital sections against sabotage, have been withdrawn, and the local defence forces of the railway companies, now units of the Home Guard, have taken over these duties, and are guarding signal boxes and other important points. Mr. Robert M. Holland-Martin, the Chairman of the Southern Railway Company, is guarding a signal box outside a London terminus one night every week.

L.M.S.R. Locomotive Named "Home Guard"

On Tuesday, July 30, at No. 1 platform, Euston station, Lt.-General Sir Henry Pownall, Inspector-General of the Home Guard, performed the naming ceremony of one of the L.M.S.R. "Patriot" class locomotives, No. 5543, *Home Guard*. Lord Stamp, introducing General Pownall, said that more than 15,000 men of the L.M.S.R. were serving with the Forces or in whole-time Civil Defence, while 50,000 of the company's staff had volunteered for the Home Guard. The Home Guard enabled many men to satisfy a latent desire to be taking part in the war. There might be some who thought it childish to name a railway engine, but the locomotive going about the country on its lawful occasions quickened thought. It was a piece of constant publicity that would appeal to millions of people and especially to members of the Home Guard themselves.

Sir Henry Pownall remarked on the happy custom of the L.M.S.R. to give certain of its engines regimental names, and it was a sign of the times that the Home Guard should receive

this form of recognition. The function of the Home Guard was largely static, and it might seem anomalous to give such a name to a locomotive, which was mobile. There were, however, points of resemblance. Both of them were robust, staunch, and reliable, and both were a purely British product.

A Guard of Honour was mounted for the naming ceremony by the Euston L.M.S. Section of the Home Guard, and the engine crew, (Driver L. Y. Pile, of Camden Depot, and Fireman W. J. Osbourne, of Willesden) were also members of the Home Guard.

No. 5543, *Home Guard*, is one of 52 4-6-0 locomotives of the "Patriot" class, the first of which is named *Patriot*, in honour of London & North-Western Railway employees who lost their lives in the last war. Of more than 350 modern-named locomotives of the L.M.S.R., some 150 have names linking the railway service with the Defence Forces, for which the railways are now providing transport on an unprecedented scale for the conveyance of personnel, munitions, and supplies. Apart from the "Patriot" series, the "Royal Scot" class of 71 locomotives is named principally after famous regiments of the British Army, whilst the "Jubilee" class of nearly 200 engines features many names associated with the great traditions of the Royal Navy. Among the latter may be mentioned engines having names which have already won fresh laurels in the present struggle, such as *Hardy*, *Ajax*, *Achilles*, *Warspite*, and *Renown*.

L.D.V. in S.R. Film

On Wednesday of this week the Southern Railway sent its mobile cinema train on tour with a film entitled "L.D.V." which provides half-an-hour's interesting and useful propaganda, as all the characters are actual members of the Southern Railway Unit of the Home Guard, and are drawn from ten different centres on the system. We were afforded the opportunity on Tuesday evening of seeing an advance showing of this film and also of examining the actual cinema unit, which was equipped shortly before the war with the object of giving commercial exhibitions in goods packing and transport, and so forth, at various points on the company's system. This Southern Railway Cinema Unit, or mobile cinema train, consists of two specially-equipped vehicles, with exteriors finished in standard S.R. green, with gold letters. The larger one, a bogie coach 60 ft. 9½ in. long, houses the auditorium which has fourteen rows of green upholstered seats, with a total seating capacity of 56, and also the projection room. The other vehicle houses the generator plant and provides a rest room with washing facilities for the operator. The throw of the projector is 39 ft. and the size of the screen is 5 ft. by 4 ft. The auditorium coach, seen in the illustration on page 126, is a new body specially constructed on an old underframe at Eastleigh works. The lighting, electrical equipment, etc., were installed at Longhedge. No windows, of course, are provided. Three sets of double doors with emergency operating handles are used as exits. The seats in the auditorium are raked (or raised on a sloping platform) to provide a good view of the screen throughout the coach. Electric and steam heating are provided, and the ventilation is silent and effective. Provision is made for the admission of fresh air through ducts underneath the floor and the foul air is extracted by means of three Vent Axia fans in the roof. The air flow is so regulated as to eliminate draughts. Similarly adequate ventilation is supplied in the projection room. The interior decoration of the auditorium is carried out in old gold throughout in a suede finish. A proscenium is provided round the screen, with curtains electrically-operated from the projection box. Strip lighting is provided, and batteries are available throughout the unit for emergency lighting. At the moment the projector equipment is for showing 16 mm. films; it can accommodate both

silent and sound films. The generator plants consists of a Victor Cub diesel engine, coupled to a 6 kW alternator of 8 power factor, 250 volts, single phase, 50 cycles. One of the special features of this cinema on wheels is the absence of the vibration normally associated with power generated mobile units of this kind. The vibration is obviated by having the plant in a separate coach which is loose coupled to the auditorium car, with the buffer faces slightly apart, when films are being projected. The unit is, of course, placed in a siding for showing films, and projection is not attempted while the train is in motion.

Harwich Motorboat Services

The L.N.E.R. has announced that the Harwich—Shotley motorboat service will be discontinued from August 6. The Harwich—Felixstowe service will be maintained by one boat running an hourly service.

The L.N.E.R. and the Salvage Campaign

Before the war large numbers of aluminium frames were fixed in L.N.E.R. booking halls for the display of excursion and cheap travel handbills. These have now all been withdrawn and half a ton of aluminium has been made available for scrap.

Among the large quantities of scrap metal being recovered by the L.N.E.R. in its salvage campaign, are 33 lb. of badges issued to staff of the former North British Railway during the war of 1914-19. With the exception of one or two being retained for record purposes, all will go to the melting pot.

Transport in Holland and Belgium

Railway lines and stations in Holland and Belgium which were damaged during the fighting are being repaired under German supervision. First attention was paid to bridges and it is now known that the invading German sappers brought with them a number of parts of bridge structures previously prepared in German works. A through "D" express is now running between The Hague and Berlin via Utrecht, Amersfoort, Bentheim, and Hanover. Emergency station buildings are in course of erection in Rotterdam, and the opening of refreshment rooms in a temporary hut at the Maas station was the occasion of an official ceremony at which railway and town officials as well as German authorities were present.

Railway transport in Belgium is still in such a disorganised state that the supplies of perishable agricultural produce from Holland are carried only by road motor lorries notwithstanding the serious restrictions imposed on motor transport.

A relief committee for railway employees has been established in Holland to assist members of the staff whose homes and properties have suffered from war damage. All working and retired employees are to contribute 1 per cent. of their salaries and pensions until further notice, and the railway staff unions have also voted grants.

According to a German broadcast from Brussels on July 29, the mail service between Belgium and Holland will be resumed shortly. It was stated that some sections of railway had been reopened, and that the following canals were again in working order: The Ghent-Bruges Canal, the Ghent Junction Canal, the Ghent-Terneuzen Canal, the Nieuport-Dunkerque Canal as far as the French frontier, the Passchendaele Canal, and the Bruges-Ostend Canal.

Bombing of Rotterdam

We reproduce on page 125 an aerial photograph which shows Rotterdam after the three-hour systematic bombing raid by German aeroplanes on Tuesday, May 14. In an area of nearly two square miles in the centre of the city only three buildings, including the town hall and the post office, were left standing, and these were damaged. The two principal main-line railway stations (Delftsche Poort and Maas), as well as the Hofplein terminus and the local electric railway to the Hague, were all badly damaged, and the Beurs station, which served the business quarter immediately north of the docks, and was situated on the main line to Dordrecht and Belgium, was completely destroyed. This part of the line,

between Delftsche Poort and the bridge over the River Maas, is on viaduct, which, however, was not seriously damaged, except at the site of the Beurs station, and was repaired sufficiently to permit of the resumption of electric train services on June 17. Besides the centre of the city, other areas were bombed, particularly in the neighbourhood of the river and the docks, and in the picture these areas can be recognised by their white appearance. The invasion of Holland by the Germans began on Friday, May 10, and it was immediately after the bombing of Rotterdam that the main Dutch Army surrendered, on May 14. It is estimated that, of 100,000 casualties among the civilian population in Rotterdam, 30,000 were killed in the three-hour raid. The German radio announced on July 25 that altogether 200,000 tons of debris had been removed. The River Schie, one of the waterways through the town, is being used as a dump for the debris, and appears already to be nearly filled up.

Rail Travel in France

By order of the German authorities, passenger trains were forbidden to cross the line of demarcation between occupied and unoccupied France as from 5 a.m. on Sunday last, July 28, according to the Havas Agency. No tickets are being issued in unoccupied France for stations in the occupied zone. The prohibition includes trains carrying refugees and persons being repatriated. The Vichy Government radio in announcing the German order described it as an important bulletin to French citizens issued by the French National Railways. It is understood that a few mail trains are still being run between the two areas but that contact across the line of demarcation is maintained only by shuttle trains from St. Etienne and Clermont-Ferrand to the borders of German-occupied France.

On Sunday night also the German Army of Occupation in France announced that the occupied territory was being divided into five zones and that movement would be restricted between one zone and another. Two of the zones, including the Channel ports, are entirely closed. According to *The Times* correspondent on the French frontier, the zones are roughly as follow:—

The first area is all of north-west France, including Channel ports as far as the Belgian frontier and extending a considerable distance inland. Travel into or out of this zone is absolutely forbidden.

The second area is about the same in size, extending from the Spanish frontier along the Atlantic up to the north-western zone No. 1, and meeting the No. 1 zone at the Loire. Decision about movement into or out of this area will be announced later.

The third area is from the Belgian frontier to the Swiss border, including what was the Maginot Line. This zone is also hermetically sealed with regard to traffic movements.

The fourth central zone extends right across France from the Atlantic coast zone to the eastern zone—namely, that including the Maginot Line zone. The southern extremity of this zone is on the border of unoccupied France, and its extent northwards is near to Paris itself, which has been declared a separate zone.

The fifth zone, north of Paris, is bordered by the north-west zone, the Belgian frontier, the Maginot zone, Paris, and the central zone. Special permits are required for travel in the central and north central zones, and will be issued only to farm workers, doctors, nurses, and public servants.

A further indication of the German desire to break up France into separate units is given by the Berlin correspondent of the *Basler Nachrichten* who reports that the German authorities have recognised the separate existence of Brittany, and proposes to place the five Breton departments under the authority of an "Executive Committee of the Breton National Council."

It is strongly rumoured that Germany intends to retain the whole of Alsace and to incorporate it in the Reich. On July 16 the Customs posts along the old Alsatian frontier with Switzerland were occupied by German Customs officers and troops. Along the rest of the French-Swiss frontier in the German-occupied zone, the French Customs houses are still staffed by French officers but under the control of German troops. Reports from Spain indicate that French railways in the occupied zone have been deprived of most of their modern equipment such as steam and electric locomotives, passenger carriages, and goods vans, and that this equipment has been transferred to Germany.



Transport Advisory Council

REPORT ON WARTIME CO-ORDINATION OF GOODS TRANSPORT

As we recorded briefly in THE RAILWAY GAZETTE of July 26, the Transport Advisory Council has reported to the Minister of Transport the conclusions resulting from its investigations into "whether those whose business it is to provide the different forms of public transport of goods in this country can, by some substantial re-arrangement of methods of working in time of war (as a result of agreement among themselves or of Governmental direction, including direction as to the allocation of traffic) provide in the national interest more efficient services than those which under existing conditions are likely to be available."

The council appointed the following members to be a committee to consider and report on the remit: Sir Arthur Griffith-Boscawen (*Chairman*), Mr. Sidney E. Garcke (*Deputy Chairman*), Sir James Milne, Sir Ralph Wedgwood, Mr. J. S. Nicholl, Lieut.-Col. F. Rayner, Sir Alfred Read, Messrs. Ernest Bevin, J. Marchbank, W. R. Spence, W. H. Gaunt, J. J. Hughes, R. R. Robbins.

At the Council's request, the Minister appointed Messrs. J. H. Turner, E. J. Woolley, and W. Everard as additional members of the committee.

Mr. Bevin resigned on his appointment as Minister of Labour and Mr. A. Deakin attended the committee in his place.

The recommendations of the committee, which were adopted by the Council on May 30, may be summarised as follows:

(a) A systematic division of traffic between the four branches of transport would increase the efficiency of the country's internal transport system during the war.

(b) This division should normally be effected by voluntary allocation of traffic by mutual agreement between the four branches of transport.

(c) There should be constituted a small central committee consisting of representatives of the four forms of transport and of the Ministries of Transport and Shipping, with an independent chairman. Provision should be made for consultation with trading and labour interests.

(d) This central committee should (i) advise the Minister as to the general principles on which traffic should be distributed; (ii) plan the best use of transport and the allocation of traffic in advance of the occurrence of a serious emergency.

(e) Regional committees with an independent chairman should be set up in each Civil Defence Region.

(f) Sub-committees on a similar basis might be established if required.

(g) The regional committees (and where appropriate the sub-committees) should (i) effect local agreements for the allocation of traffic on the basis of the principles approved by the Minister; (ii) advise the central committee; (iii) advise and keep in touch with the Regional Transport Commissioners; (iv) deal with appeals from the agreements made by sub-committees (paragraph 23).

(h) In arriving at their recommendations

and agreements, all committees and sub-committees should have regard to all relevant considerations, including the cost of transit.

(i) Consideration should be given to the fuller use of water transport, wherever suitable, by Government Departments for moving goods which they own or control.

The Minister, in a letter dated July 12 thanking the council for the report, states that the council will appreciate that the proposals would involve the setting up of a considerable piece of machinery and that it would take some time before that machinery could be effective. The question therefore is whether results commensurate with the considerable change involved would be attained. Powers already exist for the allocation of traffic in war-time conditions. Railway traffic is subject to direction by virtue of the Government control of railway undertakings. Control over the operators of road transport can be exercised so far as may be necessary to meet any particular emergency. As regards docks and harbours, the Port Emergency Committees will, under Ministry orders, have special powers over the direction of traffic from the ports in the event of a major diversion of shipping.

The council has produced a report of great value and the proposal is most interesting. If, however, it were to be adopted it is felt that it would probably be necessary to go much further; the Minister has come to the conclusion that in existing circumstances, when the position has become more acute than when the report was drawn up, the attempt to make such a drastic change in the method of control of transport would not be justified.

Road Transport in War

Another aspect of the situation arising from the war was the subject of study and a report by another body, the Road Goods Transport Special Emergency Committee, which was set up by the Minister of Transport on May 9 and of which the chairman was Mr. Sidney E. Garcke, who was Vice-Chairman of the Transport Advisory Council committee.

The committee, in its report, outlined a scheme for the setting up of an Emergency Road Haulage Board as a statutory body. The board's operations would not cover non-Government traffic carried by traders' own vehicles or by hauliers' vehicles under private arrangements with traders, so long as that method of operation could continue.

If these private operations were to impede the work of port clearance, the board would intervene by (a) requesting the Government to restrict the hours of such private operations (powers should be sought for this if necessary); (b) moving goods if required to do so by the Port and Transit Emergency Committee in exercise of its emergency functions.

The Minister has informed the com-

mittee that he does not feel it possible to accept the main proposals put forward in the report.

The Gloucester Railway Carriage & Wagon Co. Ltd.

The ordinary general meeting of the Gloucester Railway Carriage & Wagon Co. Ltd. was held on July 29 in Gloucester.

Mr. H. Leslie Boyce, M.P., Chairman of the company, in the course of his speech said that again he could report record profits, at £168,227, an increase of £5,263. The high level of profits was not attributable to the war, but was almost entirely derived from contracts placed before the outbreak of hostilities. The profits would have been greater but for the war. The subsidiary company, the Gloucester Foundry Limited, and Wagon Repairs Limited had also had another satisfactory year.

In ordinary circumstances the directors would have recommended a dividend equal to at least the 15 per cent. paid last year, and the placing to general reserve of approximately the £100,000 then transferred. This was not possible owing to the exceedingly heavy incidence of the Excess Profits Tax, for the payment of which it had been necessary to reserve £112,000. They recommended a final dividend of 5 per cent., making a total distribution of 10 per cent., less tax, for the year, and transfer £13,559 to general reserve.

Although the profits of 1938-39 and of 1939-40 were in no way derived from the country's war effort, yet they became to a great extent excess profits, because during the standard years 1935, 1936, and 1937, the company was recovering from a depression which was exceptionally severe and prolonged in that particular industry. There was another aspect of this matter. The Act provided that, during the operation of E.P.T., if in any year the standard profit was not reached—whether an actual loss was incurred or not—repayment would be made by the Crown (up to the amount which has been previously paid to it) in order to make up the deficiency. As the law now stood, they could regard the amount they were now paying in E.P.T. as having to some extent been transferred to a reserve of which the Government was the trustee, for the equalisation of the standard profit in future years if it should fall short of that standard. Nothing of the kind was, of course, anticipated.

When the Germans invaded France, the company's books were full with large orders for wagons for the B.E.F. and the French railways. These wagons were no longer required and the orders were cancelled. The company had been forced to dispense with a number of employees, but steps that were taken to remedy the position had proved successful and there was good reason to believe that the company would soon be working to capacity again.

The report and accounts were adopted.

Railway Revenues for January-June 1940

Details of revenue and expenditure of the pool of controlled railway undertakings and total net revenues and interim dividends of the companies

On July 26 the Minister of Transport issued the following White Paper containing details of the revenue and expenditure of the controlled railways:—

GOVERNMENT CONTROL OF RAILWAYS

Under the Railway Control Order, 1939 (S.R. & O., 1939, No. 1197)

ESTIMATES OF THE POOLED REVENUE RECEIPTS AND EXPENSES AND RESULTANT NET REVENUE OF THE CONTROLLED UNDERTAKINGS FOR (A) THE FOUR MONTHS ENDED DECEMBER 31, 1939, AND (B) THE HALF-YEAR ENDED JUNE 30, 1940

In Command Paper 6168 presented to Parliament by the Minister of Transport in February, 1940, an outline was given of the financial arrangements between the Minister, the four amalgamated railway companies and the London Passenger Transport Board. With the exception of the net revenue derived from investments in road transport undertakings and from ownership of and investments in railways in Northern Ireland and Eire, the revenue receipts and expenses of the controlled undertakings are pooled from September 1, 1939, and the resultant net revenue for each accounting period is appropriated in accordance with those arrangements.

The first accounting period was for the four months ended December 31, 1939, and the current period is for the year ending December 31, 1940. The results of the pool are approximately as follows:—

	September 1 to December 31, 1939	Half-year ended June 30, 1940
Receipts and expenditure of the four amalgamated railway companies and joint lines in respect of railway working and of the London Passenger Transport Board in respect of railway working and road services:		
Receipts: passenger	30,265,000	49,188,000
freight	40,222,000	66,133,000
miscellaneous	574,000	1,137,000
Total	71,061,000	116,458,000
Expenditure	58,146,000	94,904,000
Net receipts	12,915,000	21,554,000
Estimated contribution by Exchequer in respect of deficiency in net revenue of London Passenger Transport Board (paragraph 8 of Command Paper 6168)	—	1,250,000
Other items of receipts and expenditure included in the pool (net)	Dr. 330,000	Dr. 687,000
Net revenue of the pool	£13,835,000	£20,867,000

Note.—The guaranteed net revenue for a full year is £39,700,000.

Figures for certain other controlled railway companies which are parties to the pool are not included but would have no substantial effect upon the results disclosed. The figures for each complete accounting period are subject to examination on behalf of His Majesty's Government. "Other items of receipts and expenditure included in the pool (net)" includes the net revenue

from ancillary businesses (e.g., steam-boats, docks, hotels, collection and delivery of parcels and goods) and rents, interest and other miscellaneous items.

On the same day, also, the four railway companies and the London Passenger Transport Board issued individual announcements of their revenues and dividend decisions. In every case the pool results for the first six months of this year were quoted. The statements then continued:—

GREAT WESTERN RAILWAY: "Of the estimated total net revenue of £20,867,000 for the half-year to June 30, 1940, the Great Western Company's proportion is approximately £3,220,000 and this, together with the amount brought forward and the income from other sources excluded from the scope of the net revenue pool gives a total of £3,574,544. Although the amount of the net revenue pool can only be finally determined for the full year, the directors, in all the circumstances, have decided to pay (less tax at the rate of 8s. 6d. in the £) the usual interim dividends of £2 10s. per cent. on the guaranteed preference and preference stocks, and an interim dividend of 1½ per cent. on the consolidated ordinary stock. The warrants will be posted on August 14."

LONDON MIDLAND & SCOTTISH RAILWAY: "Of the estimated total net revenue of £20,867,000 for the half-year to June, 1940, the L.M.S.R. Company's proportion is approximately £7,065,000, and this together with the income from other sources excluded from the scope of the net revenue pool gives a total of £7,336,000. The amount of the net revenue pool accruing to the company can only be determined when the results for the full year are known; for this reason, and having regard to the difficulty of forecasting the conditions in the second half of 1940 as compared with those in 1939, the results for the June half cannot properly be used in isolation for the purpose of considering an interim payment on the ordinary stock for the year. At the meeting of the board of the L.M.S.R. company it was decided to make interim dividend payments on August 21 on the 4 per cent. guaranteed and preference stocks, and on the 4 per cent. preference (1923) stock, at £2 per cent. actual, less income tax at 8s. 6d. in the £."

LONDON & NORTH EASTERN RAILWAY: "Of the estimated total net revenue of £20,867,000 for the half-year to June 30, 1940, the London & North Eastern company's proportion is approximately £4,831,000 and this together with the amount brought forward and the income from other sources excluded from the scope of the net revenue pool gives a total of £5,021,000. Although the amount of the net revenue pool can only be finally determined for the full year, the directors in all the circumstances feel justified in declaring interim dividends for the past half-year at the

following rates (actual for the half-year):—

2 per cent. on the 4 per cent. first guaranteed stock;
2 per cent. on the 4 per cent. second guaranteed stock;
2 per cent. on the 4 per cent. first preference stock;
2½ per cent. on the 5 per cent. redeemable preference stock (1955);

in each case less income tax at 8s. 6d. in the £. The warrants for these dividends will be posted on August 21. Consideration of payment of dividends upon other stocks has been deferred until the accounts for the whole year are available."

SOUTHERN RAILWAY: "Of the estimated total net revenue of £20,867,000 for the half-year to June, 1940, the Southern company's proportion is approximately £3,388,000, and this together with the amount brought forward and the income from other sources excluded from the scope of the net revenue pool gives a total of £3,574,544. Although the amount of the net revenue pool can only be finally determined for the full year, the directors, in all the circumstances, have decided to pay (less tax at the rate of 8s. 6d. in the £) the usual interim dividends of £2 10s. per cent. on the guaranteed preference and preference stocks, and an interim dividend of 1½ per cent. on the preferred ordinary stock. An interim dividend of 1 per cent. was paid on the preferred ordinary stock last year. The warrants will be posted on August 15 to those proprietors whose names were registered in the books of the company on July 11."

LONDON PASSENGER TRANSPORT BOARD: "The board announces that as the accounting periods for the pool of net revenue established under the financial arrangements between the Government, the railway companies and the board, outlined in the White Paper (Cmd. 6168) presented to Parliament by the Minister of Transport in February, 1940, are to be calendar yearly periods ending December 31, it will be necessary to alter the financial year of the board to conform therewith. Authority is being obtained to enable this alteration to be effected. The net revenue of the board is dependent upon the results of the pool for a full year and it is not practicable to determine, half-way through the year, the proportion of the net revenue applicable to the first six months. The results for the first six months may obviously be affected by the events of the second six months. In the meantime, under the authority of an Order made by the Minister of Transport under the Defence Regulations, the board is making a further payment on account of interest on the London Transport "C" Stock for the financial year ended June 30, 1940. This payment will be made by the board's Registrars, the Bank of England, on August 23, 1940, to all holders of 'C' stock whose names are registered or inscribed in the books of the Bank of England at the close of business on July 30, 1940, such payment to be at the rate of 1 per cent., less income tax,

at the rate of 8s. 6d. in the £. Upon the change in the financial year being sanctioned, authority will also be sought enabling the payment on account of interest on the 'C' stock to be deemed to be an interim payment in respect of the calendar year ending on December 31, 1940. The dates for payment of interest on London Transport Stocks ranking in priority to the 'C' Stock will remain unchanged.

"Under the terms of the White

Paper payments were to be made as between the board and the Exchequer so as to adjust the net revenue of the board for the half year ended December 31, 1939, to a fixed sum of £2,430,000, out of which an interim payment of interest on the 'C' stock at the rate of 1½ per cent. was made on March 27, 1940. Of the estimated total net revenue pool of £20,867,000 for the half year ended June 30, 1940, the board's proportion is approximately

£2,357,000. The prior charge London Transport stocks require roundly £2,040,000, leaving a balance of £317,000, which sum, together with the balance of roundly £30,000 in the 'C' Stock Interest Fund, gives a total of £347,000. The board in all the circumstances has decided to make the payment on account of interest on the 'C' stock at the rate of 1½ per cent. This will require £192,741, leaving £154,259 to be carried forward."

QUESTIONS IN PARLIAMENT

Central London Line

Mr. J. Parker (Romford—Lab.), on July 18, asked the Minister how many men had been relieved for Government work by the decision to suspend work on the eastern extension of the Central London Line; how far had this work been completed; and whether any part could be opened to traffic.

Sir John Reith: I understand that some 2,000 men will be released for other work. To enable any portion of the extension to be brought into service would mean the employment of a considerable number of men for a period of about six months.

Window Bars on Railway Carriages

Mr. T. Magnay (Gateshead—Lib. Nat.), on July 23, asked why the Minister of Transport had not yet ordered the removal of the bars across the window frames of certain railway passenger trains, which were constructed of wood, in view of the peril to passengers who would be trapped in their compartments in the event of fire through enemy action or other cause; and would he treat this as an urgent matter seeing how these trains were frequently overcrowded.

Sir John Reith (Minister of Transport), in a written reply, stated: These bars exist only on certain suburban trains the carriages of which are of exceptional width. At some points on the lines the clearance is small, and it is necessary to prevent passengers from leaning out of the windows. In the interests of safety generally I do not think it is desirable that the bars should be removed.

Passenger Accommodation

Mr. G. Isaacs (Southwark, North—Lab.), on July 24, asked whether the Minister of Transport, in view of the existing circumstances of railway travel, would make representations to the railway executive as to the desirability of following the example set on some railway systems by the abolition of any distinction with respect to the class of seat.

Sir John Reith: I referred to certain aspects of this question in replies to Questions by the Member for Wolverhampton East (Mr. Mander) on July 11 and by the Member for Holland-with-Boston (Mr. Butcher) on June 12. I

do not feel that existing circumstances warrant the action proposed by my hon. friend, but it is a matter which the Railway Executive Committee assure me is subject to periodic consideration.

Mr. Isaacs: Would it be unreasonable to ask the railway executive, in view of the considerable inconvenience to third-class passengers, that first-class passengers should be prepared to give up some of their privileges?

Sir John Reith: I should like to refer my hon. friend to the Questions which I have already answered, one of which dealt with that particular point.

Mr. R. De La Bere (Evesham—C.): Is the Minister aware that certain ex-Cabinet Ministers have been in the habit of reserving compartments despite the fact that a train was unduly overcrowded?

The Minister did not reply.

Station Accommodation for Armed Forces

Mr. Glenvil Hall (Colne Valley—Lab.), on July 24, asked if the Minister of Transport would state the amounts received by or due to the railway companies from voluntary organisations catering for the comfort of the armed forces for space or buildings occupied, or amenities supplied since the outbreak of war.

Sir John Reith: For 137 sites and premises the total rent per annum to all railway companies is £594.

Season Ticket Facilities

Mr. J. Parker (Romford—Lab.), on July 24, asked the Minister of Transport whether he was aware that Travellers Facilities Limited assisted passengers in the purchase of season tickets by collecting weekly payments; that between 15 per cent. and 20 per cent. surcharge was made on tickets of juveniles compared with 12½ per cent. on those of adults for providing these facilities; and whether he would approach the Railway Executive Committee to provide such facilities direct and at a more reasonable rate, in view of the heavy burden imposed on many travellers by the recent increase in fares and the rise in the cost of living.

Sir John Reith: A number of concerns offer the facilities referred to, which consist in effect of advancing money to clients for the purchase of

quarterly seasons instead of shorter term ones. I do not think there is a case for asking the railway companies to enter this field.

Mr. Parker: Is it not possible to ask the railway companies just to make a surcharge of 10 per cent. for example, and to allow payment weekly, as there are many juveniles who cannot possibly find these sums in the whole quarter, owing to the smallness of their wages?

Sir John Reith: I understand the purport of the Question, but I would remind my hon. Friend that the railway companies normally issue weekly season tickets.

Railway Administration

Mr. H. W. Butcher (Holland-with-Boston—Lib. Nat.), on July 24, asked the Minister of Transport whether, to ensure the operation of the railways in the interest of the nation as a whole, he would now add to the Railway Executive Committee a high officer of his department, a representative of the railway workers and some individual of wide commercial experience.

Sir John Reith: The Railway Executive Committee is a body expert in all phases of railway management, and a high officer of the Ministry, the Railway Control Officer, is in constant touch with them. I think the national interest is served by the present arrangement.

Mr. Butcher: May I ask the Minister whether he is not of the opinion that the recent scandal about soldiers' accommodation at the stations might have been avoided if somebody, not so directly concerned with railway administration solely, had been added to that body?

Mr. F. C. Watkins (Hackney Central—Lab.): Has the Minister received any request from the railway trade unions that they should be represented on the railway executive, and, if not, will he take no action in the matter until he does receive such a request?

Sir John Reith: There has certainly been no such request to my knowledge.

Viscountess Astor (Plymouth, Sutton—C.): If the Minister will take into consideration the age of the directors in some railways, I think he will see that you must have younger people on, or you will never get anything done.

Mr. W. S. Liddall (Lincoln—C.): May I ask the Minister whether, instead of considering a high official of his Department as executive, he will recommend some ordinary member of this House?

Sir John Reith did not reply.

NOTES AND NEWS

London Dock Charges.—The Minister of Transport has authorised increases in the charges to be made at the docks of the Port of London, effective from August 1.

Minor Railway Charges.—The Minister of Transport has made an Order authorising the minor railways subject to Government control to increase their charges by 10 per cent.

Railway Traffic between Iran and Russia.—An Iranian delegation left Teheran on July 24 and arrived in Moscow on July 29 to discuss questions of railway traffic between Iran and the U.S.S.R. in accordance with the treaty of March 25 last.

Federated Malay States Railways Revenue.—F.M.S.R. revenue from all sources for the month of April, 1940, was £191,332 compared with £142,200 for the corresponding period of 1939. The total revenue for the period January to April, 1940, was £740,081 compared with £550,244 for the corresponding period in 1939.

Indian Railway Board : Purchase of Railways.—The Deputy Director of Finance of the Indian Railway Board has been asked to examine the question of buying the four company-managed railways whose contracts are due to expire during the next two years, says the All-India radio. The railways are the Bombay, Baroda & Central India, the Assam-Bengal, the Bengal & North-Western, and the Rohilkund & Kumaon.

Railway Assessments.—The Railway Assessment Authority on July 26 revised the part of the second railway valuation roll relating to the Great Western Railway. The other parts of the second roll were revised as follow: Southern Railway, July 28, 1939; L.M.S.R., April 26, 1940; and L.N.E.R., June 28, 1940. The authority has thus finished the work on the second roll (which operates, for rating purposes, for the quinquennial period April, 1936, to April, 1941), but there still remain certain appeals made by the L.M.S.R., L.N.E.R., and Great Western Railway

Companies, and by one or two local authorities that require to be settled. These appeals affect individual hereditaments and, when they are settled, the particulars in the second roll relating to such hereditaments may need adjustment with retrospective effect for rating.

Long Locomotive Runs.—According to Mr. F. G. Gurley, Vice-President, the Atchison, Topeka & Santa Fe Railroad is now operating oil-burning express passenger locomotives over continuous runs of 1,500 miles and diesel locomotives for 2,250 miles, and these distances could be increased if desired.

Lighting in Factories.—The Departmental Committee on Lighting in Factories in its fifth report deals particularly with lighting problems arising from black-out conditions and the increased employment of workers at night due to the need for greater output of munitions of war. The main recommendation is that over interior parts of factories in which persons are regularly employed the minimum standard of lighting should be one of 6-ft. candles 3 ft. from the floor.

General Electric Co. Ltd.—At the annual general meeting on July 18, the chairman, Lord Hirst, said that increased activity at the works and the fact that a large proportion of the business was now done with Government Departments, with higher prices for labour and material, had necessitated additional finance; some £1,000,000 had been provided by way of loan, and since March 31 a further £1,000,000 had been added to the loan. Since the money was required to cover the company's war effort and to some extent therefore was temporary, the directors had felt it best to arrange a five-year loan rather than make an issue of permanent capital.

Anglo-Argentine Tramways Co. Ltd.—Mr. B. H. Binder, Chairman, presided at the adjourned meetings of holders of the 4 per cent, first, 4 per cent, second, and 4 per cent, income debenture stocks, in London on July 26. The company's scheme of arrangement modifying the terms of its 1938 scheme, made necessary by the delays experienced by

the Transport Corporation of Buenos Aires in becoming established on a sound basis, was submitted to stockholders who passed the necessary resolutions.

Livestock by Passenger Trains

The experimental insurance scheme for livestock conveyed by passenger trains is being renewed for a further period of 12 months from August 1. The scheme, under which animals are insured against death or injury during transport, does not cover war risks.

British and Irish Railway Stocks and Shares

Stocks	Highest 1939	Lowest 1939	Prices	
			July 30, 1940	Rise/ Fall
G.W.R.				
Cons. Ord. ...	38	21 $\frac{1}{2}$	29 $\frac{1}{2}$	-1 $\frac{1}{2}$
5% Con. Pref. ...	92	71	79 $\frac{1}{2}$	+3
5% Red. Pref. (1950)	98	83	92 $\frac{1}{2}$	-3
4% Deb. ...	103	91	102 $\frac{1}{2}$	+1
4 $\frac{1}{2}$ % Deb. ...	105 $\frac{1}{2}$	93 $\frac{1}{2}$	102 $\frac{1}{2}$	+1
4 $\frac{1}{2}$ % Deb. ...	110	99	107 $\frac{1}{2}$	-2
5 $\frac{1}{2}$ % Deb. ...	121	109 $\frac{1}{2}$	112 $\frac{1}{2}$	+1
2 $\frac{1}{2}$ % Deb. ...	63 $\frac{1}{2}$	54	62	+1
5% Rt. Charge ...	117	104	109 $\frac{1}{2}$	+3
5% Cons. Guar. ...	111	96 $\frac{1}{2}$	104 $\frac{1}{2}$	-

L.M.S.R.				
Ord. ...	17	9 $\frac{1}{2}$	12 $\frac{1}{2}$	- $\frac{1}{2}$
4% Pref. (1923) ...	46 $\frac{1}{2}$	20	35 $\frac{1}{2}$	-1
4% Pref. ...	63 $\frac{1}{2}$	37 $\frac{1}{2}$	47 $\frac{1}{2}$	-
5% Red. Pref. (1955) ...	83	58 $\frac{1}{2}$	71 $\frac{1}{2}$	- $\frac{1}{2}$
4% Deb. ...	98 $\frac{1}{2}$	85	92	-
5% Red. Deb. (1952) ...	109	101 $\frac{1}{2}$	105	+1
4% Guar. ...	87 $\frac{1}{2}$	73	79 $\frac{1}{2}$	+ $\frac{1}{2}$

L.N.E.R.				
5% Pref. Ord. ...	5 $\frac{1}{2}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	-
Def. Ord. ...	3 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	-
4% First Pref. ...	38 $\frac{1}{2}$	19	23 $\frac{1}{2}$	+1
4% Second Pref. ...	15 $\frac{1}{2}$	7 $\frac{1}{2}$	10	- $\frac{1}{2}$
5% Red. Pref. (1955) ...	55	38	50 $\frac{1}{2}$	+5
4% First Guar. ...	78 $\frac{1}{2}$	60	66 $\frac{1}{2}$	-
4% Second Guar. ...	68 $\frac{1}{2}$	47	53 $\frac{1}{2}$	-2
3 $\frac{1}{2}$ % Deb. ...	71 $\frac{1}{2}$	57	62	-1
4% Deb. ...	93	76	82	-
5% Red. Deb. (1947) ...	106 $\frac{1}{2}$	98	102	-
4% Sinking Fund	104 $\frac{1}{2}$	96	99 $\frac{1}{2}$	+1
Red. Deb.				

SOUTHERN				
Pref. Ord. ...	78	46 $\frac{1}{2}$	46 $\frac{1}{2}$	-1
Def. Ord. ...	19 $\frac{1}{2}$	14	14 $\frac{1}{2}$	-
5% Pref. ...	100	76	78	+2
5% Red. Pref. (1964) ...	102 $\frac{1}{2}$	94	89 $\frac{1}{2}$	-
5% Guar. Pref. ...	116 $\frac{1}{2}$	103	102 $\frac{1}{2}$	+2
5% Red. Guar. Pref. (1957) ...	112 $\frac{1}{2}$	102 $\frac{1}{2}$	102 $\frac{1}{2}$	-
4% Deb. ...	103	91 $\frac{1}{2}$	99	+1
5% Deb. ...	118 $\frac{1}{2}$	109 $\frac{1}{2}$	112 $\frac{1}{2}$	-
4 $\frac{1}{2}$ % Red. Deb. (1962-80) ...	106	98	101 $\frac{1}{2}$	-
4 $\frac{1}{2}$ % Red. Deb. (1970-80) ...	102	96	100 $\frac{1}{2}$	-

FORTH BRIDGE				
4% Deb. ...	98 $\frac{1}{2}$	81	87 $\frac{1}{2}$	-
4% Guar. ...	95	80	85 $\frac{1}{2}$	-

L.P.T.B.				
4 $\frac{1}{2}$ % "A" ...	115	103	107	-
5 $\frac{1}{2}$ % "B" ...	123	106 $\frac{1}{2}$	113	-
4 $\frac{1}{2}$ % "T.F.A." ...	105	100 $\frac{1}{2}$	102	-
5 $\frac{1}{2}$ % "B" ...	117 $\frac{1}{2}$	102	104 $\frac{1}{2}$	-3
"C" ...	84	63 $\frac{1}{2}$	-	-

MERSEY				
Ord. ...	24 $\frac{1}{2}$	17 $\frac{1}{2}$	20 $\frac{1}{2}$	-
4% Perp. Deb. ...	93 $\frac{1}{2}$	88 $\frac{1}{2}$	89	-
3% Perp. Deb. ...	77	65 $\frac{1}{2}$	59 $\frac{1}{2}$	-
3% Perp. Pref. ...	55	49 $\frac{1}{2}$	54 $\frac{1}{2}$	-

IRELAND BELFAST & C.D.				
Ord. ...	6	3	4	-
G. NORTHERN				
Ord. ...	6	2 $\frac{1}{2}$	4	-
G. SOUTHERN				
Ord. ...	13 $\frac{1}{2}$	8	11	-
Pref. ...	26	10	22 $\frac{1}{2}$	-
Guar. ...	40 $\frac{1}{2}$	22	29 $\frac{1}{2}$	-
Deb. ...	57	45 $\frac{1}{2}$	52 $\frac{1}{2}$	-

* ex dividend.

IRELAND	Totals for 29th Week			Totals to Date		
	1940	1939	Inc. or Dec.	1940	1939	Inc. or Dec.
Belfast & C.D. (80 miles)	£ 6,293	£ 5,319	+	£ 85,529	£ 70,423	+
pass. goods	692	482	+	210	15,053	12,584
total	6,985	5,801	+	1,184	100,582	83,007
Great Northern (543 miles)	15,900	16,500	-	600	324,600	300,150
pass. goods	13,700	10,250	+	3,450	350,300	291,900
total	29,600	26,750	+	2,850	674,900	592,050
Great Southern (2,076 miles)	pass. 39,597	48,281	-	8,684	956,604	975,870
goods 51,094	39,828	+	11,266	1,297,550	1,177,070	+
total	90,691	88,109	+	2,582	2,254,154	2,152,940
L.M.S.R. (N.C.C.) (271 miles)	pass. 7,700	7,430	+	270	152,510	127,350
goods 4,160	3,050	+	1,110	103,650	84,680	+
total	11,860	10,480	+	1,380	256,160	212,030

OFFICIAL NOTICES

REPORT: Accounts; Financial; Languages: Englishman director GREGG, Loth, Belgium, thorough knowledge South, Central, North America, Spain and European countries; perfect Spanish, French, Portuguese, 42, owing to invasion free for offers, highest references given and required.—Box 307, c/o The Railway Gazette, 33 Tothill Street, London, S.W.1.

WANTED:—40/100 H.P. Diesel Locomotive 4 ft. 8½ in. gauge, Standard drawbar and brake arrangements.—Box. 247, c/o *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Wednesday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

Railway and Other Reports

Fishguard & Rosslare Railways & Harbours Company.—Accounts for half year to June 30 show amount provided under guarantee of G.W.R. and Great Southern Railways companies, £39,540 (against £39,563) fees and expenses, £111 (£13) debenture interest, £13,904 (same).

Great Northern Railway Company (Ireland).—The directors state that although in the half-year to June 30 there has been some improvement in traffic receipts, it is offset by increasing costs which oblige them to defer consideration of a dividend to guaranteed stockholders until the end of the year.

Rohilkund & Kumaon Railway Co. Ltd.—Net earnings for half year to March 31 were Rs. 24,99,833 (against Rs. 16,41,098). Company's share of net earnings after Indian tax, £75,415 (£46,603). Interim dividend and bonus unchanged at 8 per cent. and £20,723 is carried forward.

Bengal & North Western Railway Co. Ltd.—For half year to March 31, net earnings were Rs. 1,10,97,628, an increase of Rs. 7,27,792. The company's share of net earnings, after Indian tax, was £372,310 (£378,337). Dividend and bonus on the ordinary stock is again 8 per cent. The carry forward is £17,575.

Shire Highlands Railway (Nyasaland) Limited.—The final general meeting of the company will be held at 3, Thames House, Queen Street Place, E.C.4, on August 21, to receive the report of the liquidator. The business to be conducted at the meeting is formal. The undertaking of the company was acquired in 1930 by the Nyasaland Railways Limited.

Wabash Railway Company.—In 1939 railway operating revenues were earned of \$44,662,526 which were \$4,190,199 higher than those of 1938. The total operating expenses of \$34,245,139 showed an increase of \$1,790,618 only, bringing the operating ratio down from 80·19 per cent. to 76·68 per cent. Net railway operating income rose by \$2,261,756 to \$3,559,246, and the income available for interest was \$2,407,840 higher at \$3,528,463. Interest charges amounted to \$7,070,647, leaving a net deficit of \$3,542,183 which was \$2,585,706 below that of 1938.

Tilling & British Automobile Traction Limited.—This company is controlled jointly by the British Electric

Traction Limited and Thomas Tilling Limited, and is associated with the four main-line railway companies in the control of a number of road motor operators. The directors announce an interim dividend of 3½ per cent. tax free on the ordinary shares, which compares with 4 per cent. tax free a year ago.

Thomas Tilling Limited.—Interim dividend is 5 per cent. (same).

Vickers Limited.—The directors of Vickers Limited have declared the following interim dividends: 2½ per cent. actual, less tax, on the preferred 5 per cent. stock, 2½ per cent. actual, less tax, on the 5 per cent. preference stock, 2½ per cent. actual, free of tax up to 6s. in the £ on the cumulative preference stock.

A.B.C. Coupler & Engineering Co. Ltd.—Net profit for year to September 30 was £5,497 (against £8,003). Final ordinary dividend recommended is 5 per cent., making 10 per cent. for the year (unchanged). General reserve receives £3,000 (against £2,000), and the carry forward is £1,554 against £1,478 brought in.

Gloucester Railway Carriage & Wagon Co. Ltd.—For the year to May 31, 1940, trading profit amounted to £206,732 and investment income to £9,061, against £200,235 and £11,426, making a total of £215,793, against £211,161. Net profit, after directors' fees, wagon rent, debenture interest, and depreciation, was £168,227, compared with £162,964. A sum of £112,000 is set aside for excess profits tax, and reserve gets £13,559 compared with £100,000. The final dividend recommended is 5 per cent. (against 10 per cent.), making 10 per cent. for the year, compared with 15 per cent. for 1938-39, leaving £13,539 to be carried forward, against £4,339 brought in. Work in progress is valued at £149,730, and wagons for letting on simple hire figure in the balance sheet at £98,734, compared with £56,291. The banker's loan is reduced from £146,169 to £23,420.

General Electric Co. Ltd.—Profits for the year ended March 31, 1940, amounted to £1,892,994 (against £1,776,099), and adding £807,220 brought forward, gave a total of £2,700,214, against £2,576,033. After deducting £495,442 for depreciation, £5,052 for directors' fees, contributing £62,343 to pension fund, transferring £540,000 to income tax reserve, and £100,000 to reserve, and paying preference dividends amounting to £160,650

there remains an available balance of £1,336,727. The directors recommend a dividend, less tax, on the ordinary stock of 10 per cent. for the year (£262,398) and a bonus of 10 per cent., less tax (£262,398), leaving £811,931 to be carried forward. Profits for the year created a fresh record. The works have been employed to the utmost capacity. Export business, though slightly below last year's record figure, has continued at a satisfactory level. A good supply has been maintained to all available overseas markets. Trading of the overseas companies has shown very satisfactory results, except in China and France. Considerable manufacturing facilities have been acquired in Australia and, to some extent, also in India and New Zealand.

Contracts and Tenders

The Indian Stores Department has placed the following orders:—

United Steel Companies (India) Limited: 7,084 ft. of s.d. steel tubes.

Heatley & Gresham Limited: 300 flue tubes.

Burn & Co. Ltd.: Three metre-gauge tank wagons. Six steel axles.

The Controller of Non-ferrous Metals will be prepared to buy: (a) rough copper produced from works in this country assaying not less than 97·25 per cent. copper at a price of £53 per ton, f.o.r. sellers' works; (b) rough copper assaying 99 per cent. copper or over, produced from works in this country, at a price of £54 per ton, f.o.r. sellers' works; for delivery within three months of the date of each contract; payment net cash when the copper is placed at the disposal of the Non-ferrous Metals Control, together with certified assay showing the copper content.

The Controller is also prepared to buy pig lead refined in this country, for delivery within three months of the date of each contract, at the price of £22 10s. per ton f.o.r. sellers' works, provided that the lead content is 99·98 per cent. or over and that the impurities do not exceed the following limits: Antimony, 0·003; copper, 0·0015; bismuth, 0·01; tin, 0·0001; zinc, 0·0001; iron, 0·0003; arsenic, trace; silver, 5 dwt. Payment net cash when the lead is placed at the disposal of the Non-ferrous Metals Control, together with certified analysis. Enquiries should be addressed to the Controller, Non-ferrous Metals Control, Grand Hotel, Rugby.

Railway Stock Market

Hopes of improvement in business on the Stock Exchange have again been disappointed, and despite the excellent impression created by the interim dividend statements, home railway stocks developed a moderately reactionary trend this week. It is unfortunate that, when the satisfactory interim payments were drawing general attention to the attractive yields on home railway securities, market sentiment should have come entirely under the disposition to await the next turn of events in the war and the outcome of international political developments in Japan and Spain. Nevertheless, there is now every reason to expect that, when there is sustained improvement in conditions on the Stock Exchange, home railway stocks will participate strongly in any general upward movement. There seems little doubt that they are undervalued in relation to many industrial securities, and moreover the railways are better placed in regard to compensation for possible air-raid damage.

The interim dividend on Great Western ordinary was in accordance with best estimates, but on balance the price has moved down from 30½ to 28½ now it is "ex" the interim payment. Great Western 5 per cent. preference moved up from 76½ to 79 xd. and the guaranteed

stock remained at 105, but the 4 per cent. debentures were a point higher at 102. In fact rather better demand has been reported for most debentures of the main-line railways, because the yields obtainable are on the generous side, bearing in mind the high investment status of these stocks. L.M.S.R. ordinary was fractionally lower at 12½, but the market is now hopeful that a small payment may be possible on this stock for the current year, although estimates do not exceed 1½ per cent. L.M.S.R. 4 per cent. senior preference was a point better at 48 xd., but the 1923 preference has gone back from 36½ to 35 xd. at the time of writing. On the other hand, the guaranteed stock, although xd., was a point higher at 79½, while the 4 per cent. debentures were better at 92, as were the 5 per cent. debentures at 105.

Among Southern issues, the preferred failed to show further improvement on balance, following deduction of the interim from the price, and as compared with a week ago has gone back a point to 46. The deferred was fractionally higher at 10½, while improvement from 76½ to 78 xd. was shown in the 5 per cent. preference stock. Southern 4 per cent. debentures were fractionally better at 98½. L.N.E.R. first preference was well main-

tained, being quoted at 32 xd., while the second preference transferred around 10. Better demand was reported for the guaranteed stocks, and the firsts were a point up at 67½ xd., while the seconds were 53 xd., compared with 51 a week ago. L.N.E.R. 3 per cent. debentures were 62; the 4 per cent. debentures at 82 were also virtually unchanged on the week. London Transport "C" although xd., was 30, the same as a week ago, and the 4½ per cent. "A" stock remained at 107.

Among foreign railway securities, further marking-down of debentures of the leading Argentine railways again provided the chief feature, but the reduced prices were apparently tested by very little business. Central Argentine 5 per cents were 34, and B.A. & Pacific 4 per cents were 51½. On the other hand, a slightly better tendency was reported in B.A. Gt. Southern ordinary stock, while elsewhere Antofagasta ordinary was also inclined to improve. San Paulo ordinary, however, moved back slightly. In other directions, there were again a fair number of transactions recorded among Indian railway stocks. Elsewhere, Canadian Pacific preference continued in favour, and further improved to 40½, while Grand Trunk debentures recovered to 103.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

Railways	Miles open 1939-40	Week Ending	Traffic for Week			Aggregate Traffic to Date			Shares or Stock	Prices						
			Total this year	Inc. or Dec. compared with 1939	No. of Weeks	Totals		Increase or Decrease		Highst 1939	Lowest 1939	July 30, 1940				
						This Year	Last Year									
South & Central America																
Ancolagasta (Chili) & Bolivia	834	21.7.40	£ 17,580	—	5,260	29	£ 533,480	£ 380,660	+	152,820	Ord. Stk.	10½	4½	5	Nil	
Argentine North Eastern	753	20.7.40	ps. 189,000	+ ps. 12,600	3	26	ps. 512,000	ps. 568,100	-	ps. 56,100	6 p.c. Deb.	4½	2	2	Nil	
Bolivar ...	174	June 1940	3,930	—	720	26	24,580	24,950	—	370	Bonds	7½	5½	6½	Nil	
Brazil ...	2,801	20.7.40	ps. 1,147,000	- ps. 56,000	3	ps. 3,248,000	ps. 4,023,000	- ps. 775,000	—	Ord. Stk.	5½	2	2	Nil		
Buenos Ayres & Pacific	190	18.5.40	£ 86,100	—	£ 24,600	47	£ 441,700	£ 468,600	-	£ 244,800	Mt. Deb.	14	8	13½	Nil	
Buenos Ayres Central	5,082	20.7.40	ps. 1,931,000	+ ps. 164,000	3	ps. 5,727,000	ps. 6,042,000	- ps. 315,000	—	Ord. Stk.	13½	4½	4	Nil		
Buenos Ayres Gt. Southern	1,930	20.7.40	ps. 641,000	- ps. 67,000	3	ps. 1,846,000	ps. 2,183,000	- ps. 337,000	—	Ord. Stk.	10½	4	3	Nil		
Buenos Ayres Western	3,700	20.7.40	ps. 1,488,000	+ ps. 652,650	3	ps. 4,167,800	ps. 6,881,450	- ps. 2,713,650	—	Ord. Stk.	11½	4	3	Nil		
Central Argentine Do.	—	—	—	—	—	—	—	—	—	Dfd.	4	1½	2	Nil		
Cent. Uruguay of M. Video	972	20.7.40	16,160	—	1,688	3	49,322	55,172	—	5,850	Ord. Stk.	2½	1½	1½	Nil	
Costa Rica ...	188	May 1940	17,282	—	7,020	48	193,339	245,516	-	52,177	Stk.	24½	18	17½	11½	
Dorada ...	70	June 1940	12,900	—	900	26	72,000	80,600	-	8,600	1 Mt. Db.	104½	102	100	6	
Entre Rios ...	810	20.7.40	ps. 258,900	- ps. 14,900	3	ps. 725,100	ps. 916,400	- ps. 191,300	—	Ord. Stk.	6	3	1	Nil		
Great Western of Brazil	1,016	20.7.40	6,700	+ 2,300	29	302,800	245,400	+ 57,400	—	Ord. Stk.	3½	1½	1½	Nil		
International of Cl. Amer.	794	May 1940	\$497,519	- \$18,755	22	\$2,840,951	\$2,800,927	+ \$40,024	—	1st Pref.	7½	7½	—	Nil		
Interoceanic of Mexico	—	—	—	—	—	—	—	—	—	Stk.	7	6½	6½	Nil		
La Guaira & Caracas	22½	June 1940	4,760	- 2,025	26	39,435	35,430	+ 4,005	—	Ord. Stk.	2½	1½	1½	Nil		
Leopoldina ...	1,918	20.7.40	24,213	+ 2,614	29	635,269	551,824	+ 83,445	—	Ord. Stk.	1½	1	1	Nil		
Mexican ...	483	21.6.40	ps. 282,600	- ps. 31,000	25	ps. 7,471,900	ps. 7,925,900	- ps. 450,000	—	Ord. Stk.	1½	1	1	Nil		
Midland of Uruguay	319	June 1940	10,590	+ 3,473	52	131,300	104,319	+ 26,981	—	Ord. Stk.	2½	1½	1½	Nil		
Nitrate ...	386	15.7.40	9,576	+ 4,888	28	97,936	65,564	+ 32,372	—	Ord. Stk.	2½	1½	1½	Nil		
Paraguay Central	274	20.7.40	\$3,470,000	- \$206,000	3	\$12,505,000	\$11,748,000	+ \$757,000	—	Pr. Li. Stk.	45½	36	38	15½		
Peruvian Corporation	1,059	June 1940	70,407	+ 10,840	52	820,597	785,648	+ 34,949	—	Pr. Li. Stk.	1½	1	2	Nil		
Salvador ...	100	22.6.40	£ 14,617	+ £ 617	51	£ 970,864	£ 1,050,389	+ £ 79,525	—	Pr. Li. Stk.	19½	16	15	Nil		
Sao Paulo ...	153½	14.7.40	38,500	+ 582	28	1,045,636	914,290	+ 131,346	—	Ord. Stk.	38	20	28	8½		
Talat ...	160	May 1940	2,540	+ 520	48	28,760	31,245	- 2,485	—	Ord. Stk.	½	½	½	9½		
United of Havana	1,353	20.7.40	17,539	+ 1,896	3	48,369	51,301	- 2,932	—	Ord. Stk.	2	½	2	Nil		
Uruguay Northern	73	June 1940	885	+ 179	52	13,244	11,366	+ 1,878	—	Ord. Stk.	2	2	2	Nil		
Canada	Canadian National ...	23,695	21.7.40	981,441	+ 274,064	29	25,761,851	19,604,757	+ 6,157,093	—	Perp. Dbs.	74½	60	72½	½	
	Canadian Northern ...	—	—	—	—	—	—	—	—	4 p.c.	4 p.c. Gar.	100	76	102	3½	
	Grand Trunk ...	—	—	—	—	—	—	—	—	—	Ord. Stk.	7½	3½	5½	Nil	
	Canadian Pacific ...	17,153	21.7.40	681,600	+ 142,400	29	17,067,000	13,877,600	+ 3,189,400	—	Ord. Stk.	—	—	—	—	
India	Assam Bengal ...	1,329	30.4.40	45,187	+ 6,529	4	135,060	120,437	+ 14,623	—	Ord. Stk.	76½	60	72½	4½	
	Barts Light ...	202	31.5.40	3,577	+ 300	9	24,607	19,545	+ 5,062	—	Ord. Stk.	56½	50	54	8½	
	Bengal & North Western	2,091	June 1940	231,600	+ 20,256	13	811,688	713,368	+ 98,320	—	Ord. Stk.	277	229	240	6½	
	Bengal Doobars & Extension ...	161	31.5.40	4,567	+ 1,449	9	23,228	15,781	+ 7,447	—	Ord. Stk.	91	84½	215	3	
	Bengal-Nagpur ...	3,269	20.5.40	247,650	+ 17,103	7	1,252,050	1,161,007	+ 91,043	—	Ord. Stk.	94½	83½	93½	4½	
	Bombay, Baroda & Cl. India	2,986	20.7.40	222,375	+ 24,225	16	3,061,050	2,736,600	+ 324,450	—	Ord. Stk.	108	90	100	6	
	Madras & Southern Mahratta	2,967	31.5.40	192,300	+ 10,980	9	1,152,000	1,087,659	+ 64,341	—	Ord. Stk.	104½	92	98½	7½	
	Rohilkund & Kumaon ...	571	June 1940	58,050	+ 9,246	13	192,915	151,792	+ 41,123	—	Ord. Stk.	280	263	250	6½	
	South Indian ...	2,531½	20.5.40	121,425	+ 7,685	7	598,652	589,624	+ 9,028	—	Ord. Stk.	102½	88	84½	5½	
Various	Beira ...	204	May 1940	81,516	—	34	582,096	—	—	948	Prf. Sh.	—	—	—	—	
	Egyptian Delta ...	623	10.5.40	4,591	—	602	6	19,436	20,384	-	948	Prf. Sh.	—	—	—	Nil
	Kenya & Uganda ...	1,625	—	—	—	—	—	—	—	—	B. Deb.	55	39	47½	7½	
	Manila ...	—	—	—	—	—	—	—	—	—	Inc. Deb.	91½	87½	82½	4½	
	Midland of W. Australia	277	Mar. 1940	12,505	- 4,071	40	115,376	138,753	- 23,377	—	—	—	—	—	—	
	Nigerian ...	1,900	1.6.40	29,731	+ 5,576	9	342,694	275,542	+ 67,152	—	—	—	—	—	—	
	Rhodesia ...	2,442	May 1940	413,336	—	34	3,045,211	—	—	—	—	—	—	—	—	
	South Africa ...	13,287	29.6.40	712,041	+ 20,818	13	8,491,896	8,209,195	+ 282,701	—	—	—	—	—	—	
	Victoria ...	4,774	Mar. 1940	884,029	+ 32,550	39	7,583,830	7,069,208	+ 514,622	—	—	—	—	—	—	

Note. Yields are based on the approximate current prices and are within a fraction of 1½. Argentine traffics are now given in pesos

* Quotation is of June 17, 1940; dealings subsequently prohibited

† Receipts are calculated @ £s. 6d. to the rupee